Southern Medical Journal

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In this issue—

RADIUM ATTENUATION IN THE TREATMENT OF CARCINOMA OF THE CERVIX—P. W. Voltz, Jr., J. T. Mallams, and Gerald E. Swindell 1205

THE MATCH TEST AND ITS SIGNIFICANCE—Asher Marks and Jose Bocles 1211

CASE REPORT

RECONSTRUCTIVE SURGERY IN THE TREATMENT OF BLASTOMYCOSIS—Gordon S. Letterman and Maxine Schurter 1217

RECENT ADVANCES IN ACUTE LEUKEMIA IN CHILDREN—Donald J. Fernbach 1220

INTUSSUSCEPTION IN INFANTS AND CHILDREN—Basil Lionakis, Stephen W. Gray, John E. Skandalakis, and John T. Akin, Jr. 1226

INDIVIDUALIZING THE EXCRETORY UROGRAM—Marvin Greer Rape and Newton F. McDonald 1236

BENIGN PRIMARY PULMONARY HISTOPLASMOSIS: A COMMON CAUSE OF UNEXPLAINED FEVER IN CHILDREN—Joseph A. Little 1238

TENDON LENGTHENING FOR VOLKMANN'S ISCHEMIC CLAWHAND—Jacob KULOWSKI 1241

THE LYMPHOID TISSUE OF THE NASOPHARYNX: FACTORS RESPONSIBLE FOR CERTAIN HISTOPATHOLOGIC ALTERATIONS. A PRELIMINARY STUDY—A. R. Hollender and Jerome Benson 1247

PRIMARY CARCINOMA OF THE FALLOPIAN TUBE—Sallye J. Toniette, Alonso Velarde, and George A. Williams 1253

POSTHYPOGLYCEMIC ENCEPHALOPATHY—George M. Jones 1258

Continued on cover 2

ST. LOUIS NUMBER

SOUTHERN MEDICAL ASSOCIATION
Fifty-Fourth Annual Meeting
St. Louis, Missouri, Monday, Tuesday, Wednesday and Thursday, Oct. 31-Nov. 3, 1960

OCTOBER 1960

VOLUME 53 NUMBER 10

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CONTENTS

Continued from cover 1

EVALUATION OF THE JAUNDICED PATIENT IN THE POSTOPERATIVE PERIOD—John T. Galambos 1263

DICHLORISONE: A "TOPICAL" STEROID—Harry M. Robinson, Jr. 1268

NONPENETRATING WOUNDS OF THE ABDOMEN: A REPORT OF 47 CASES WITH REVIEW OF THE LITERATURE—Henry D. H. Olinde 1270

HEMOLYTIC TRANSFUSION REACTIONS AND THERAPY: CASE REPORT OF REACTION DUE TO ANTI-LE^a—DeWitt T. Hunter, Jr. 1283

PRACTICAL REHABILITATION OF THE ASTHMATIC PATIENT—Merle S. Scherr 1287

CHLORAMPHENICOL IN TYPHOID FEVER—A REDUCED DOSAGE—N. Islam and A. Q. M. Nurul Haq 1291

EDITORIALS 1296

The Abdominal Surgeon's Challenge to Peritonitis

The Indiscriminate Use of Blood

TWENTY-FIVE YEARS AGO 1300

SOUTHERN MEDICAL NEWS 1301

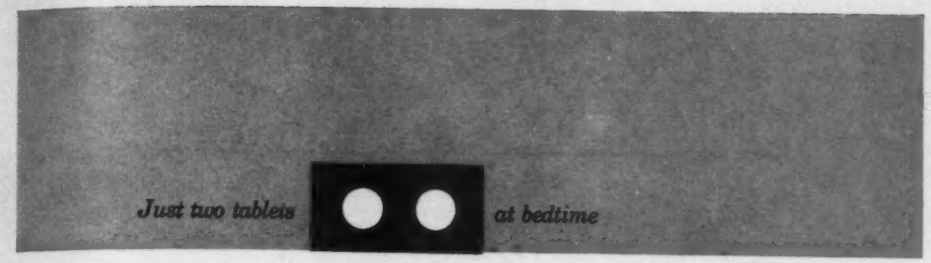
INSTRUCTIONS TO CONTRIBUTORS 1302

OFFICERS OF THE SOUTHERN MEDICAL ASSOCIATION 1959-1960 1303

ST. LOUIS 1307

PROGRAM FOR ST. LOUIS MEETING 1317

INDEX TO ADVERTISERS ..... Adv. Page 92



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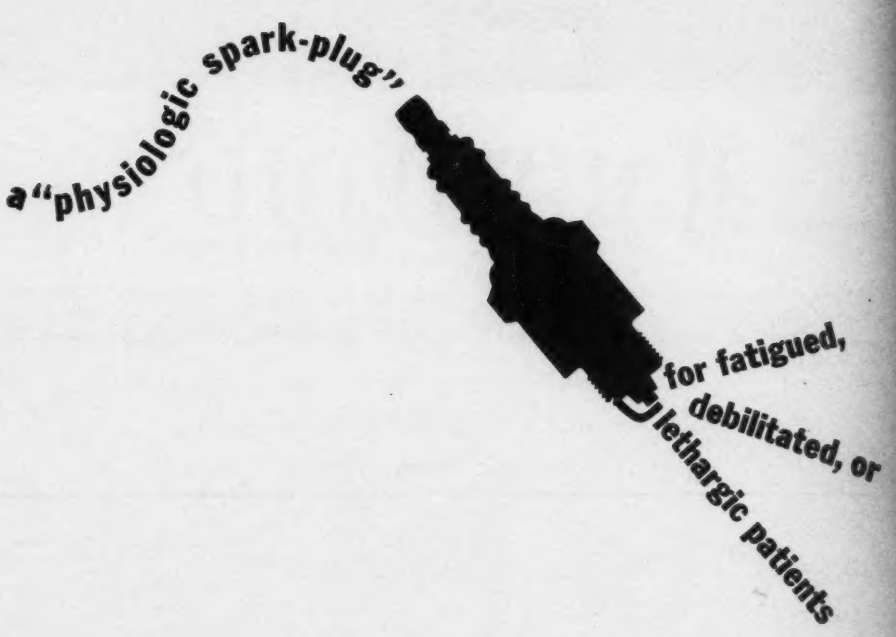

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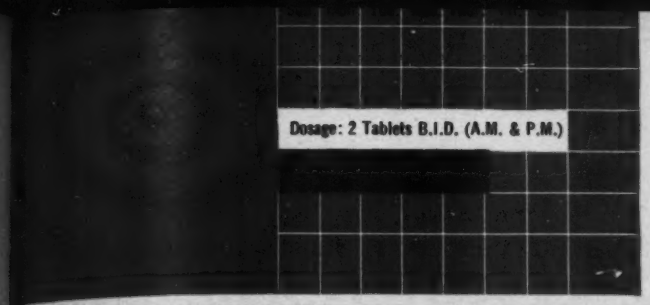

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*Newcomer, V. D., et al.: A.M.A. J. Dis. Child. **99**:585, 1960.

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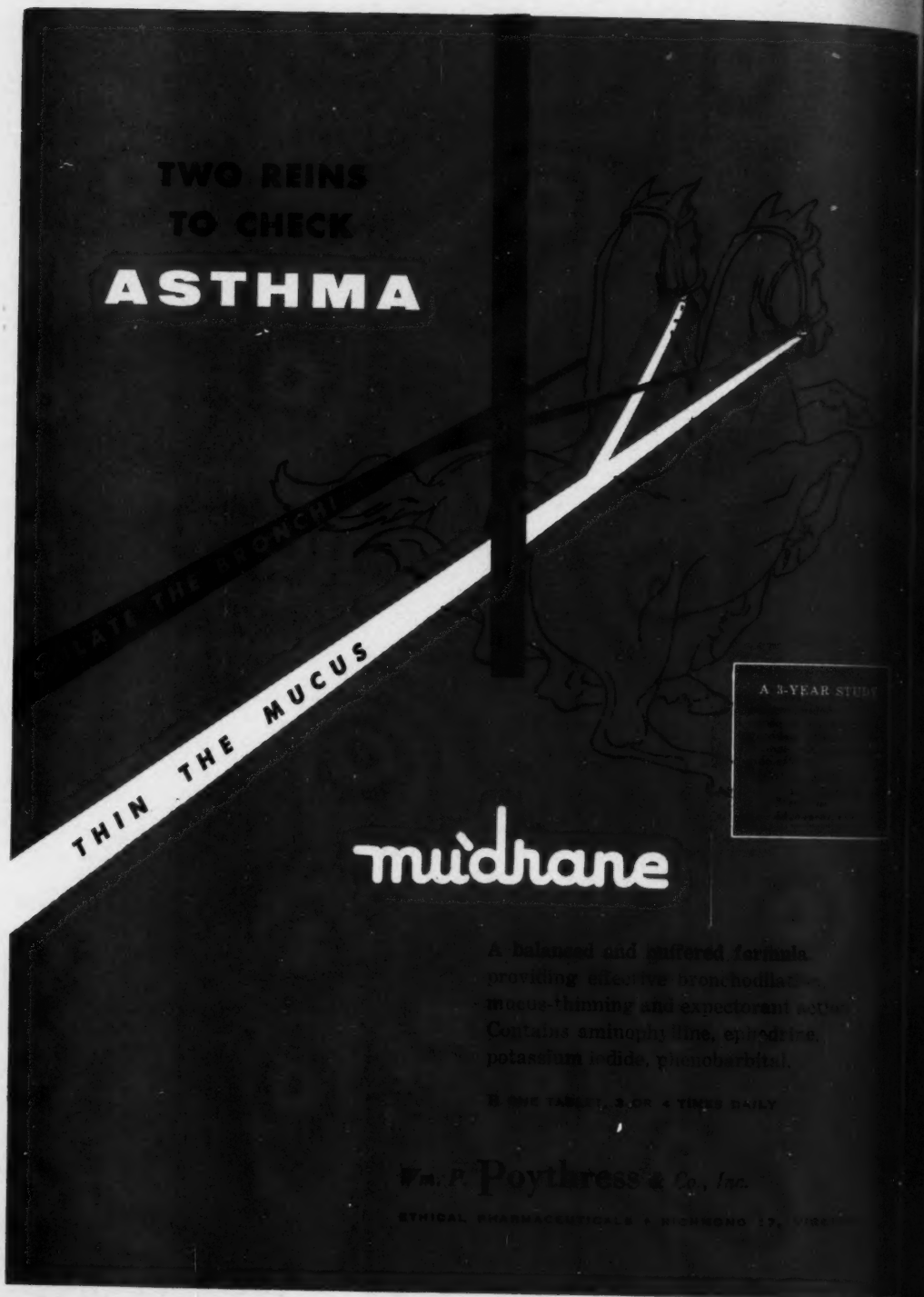
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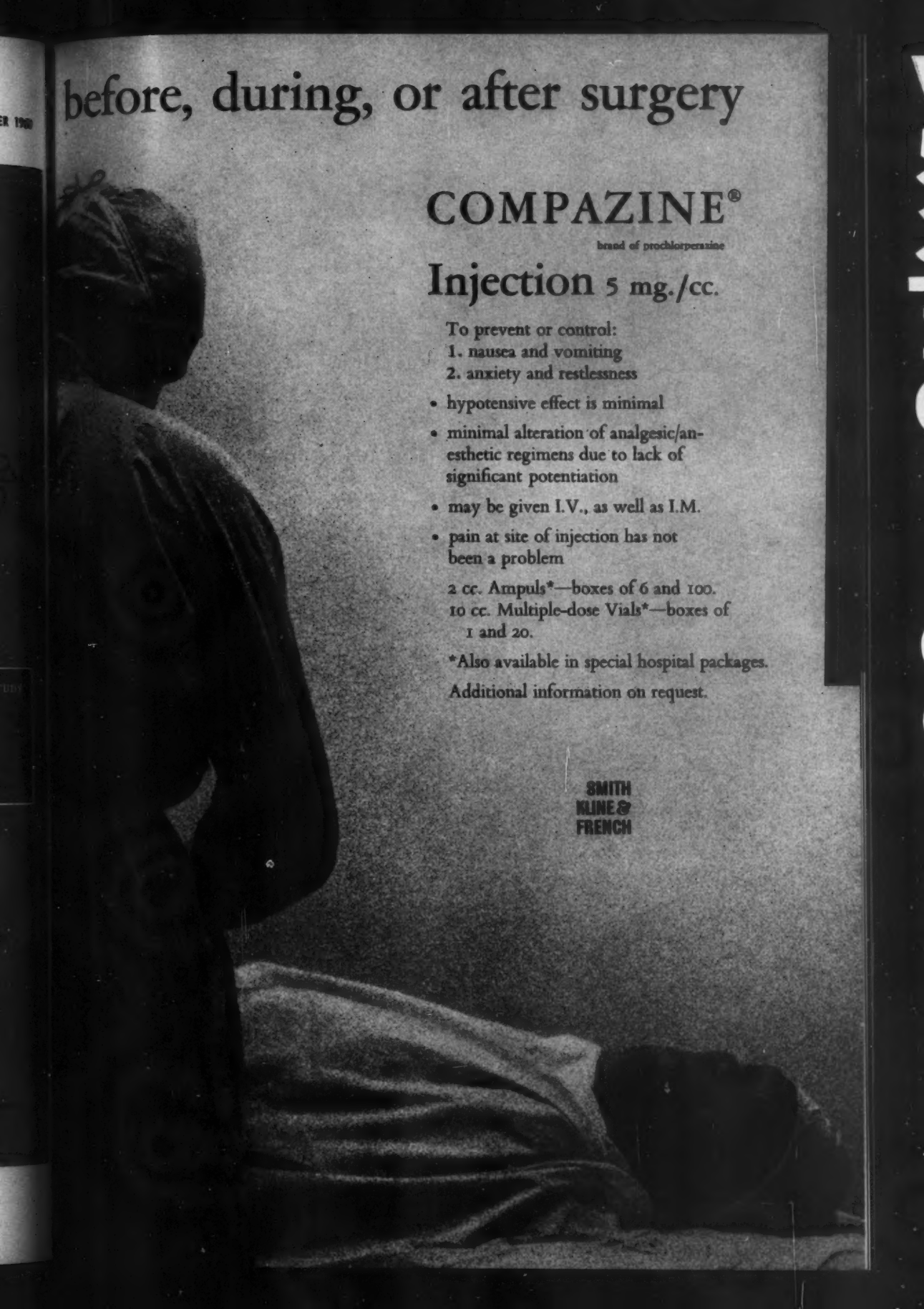
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References: 1. Schreiner, G. E.: A.M.A. Arch. Int. M. **102**:32, 1958. 2. Freedman, L. R., and Beeson, P. B.: Yale J. Biol. & Med. **30**:406, 1958. 3. Rocha, H., et al.: Yale J. Biol. & Med. **30**:341, 1958.

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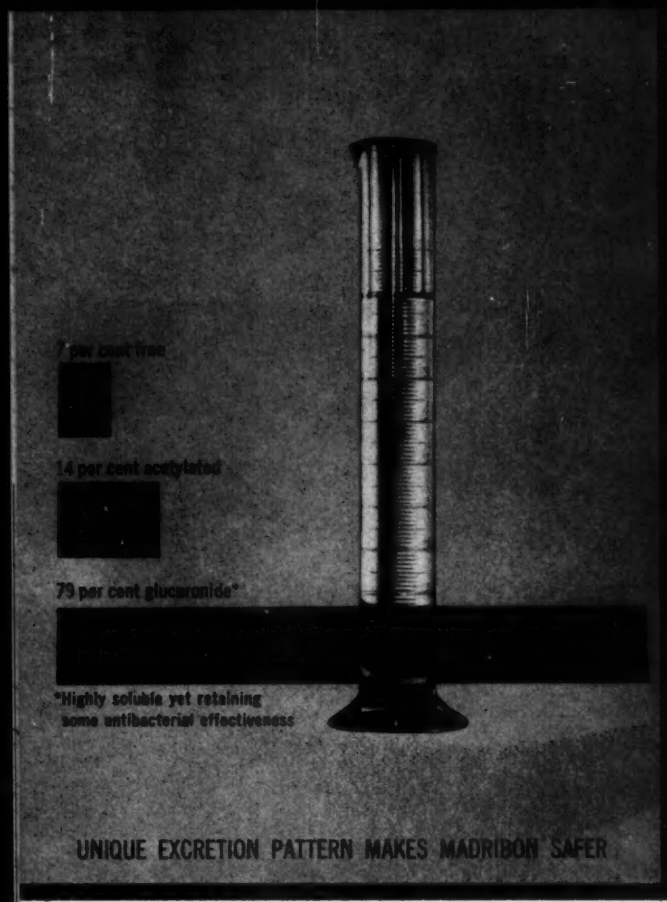
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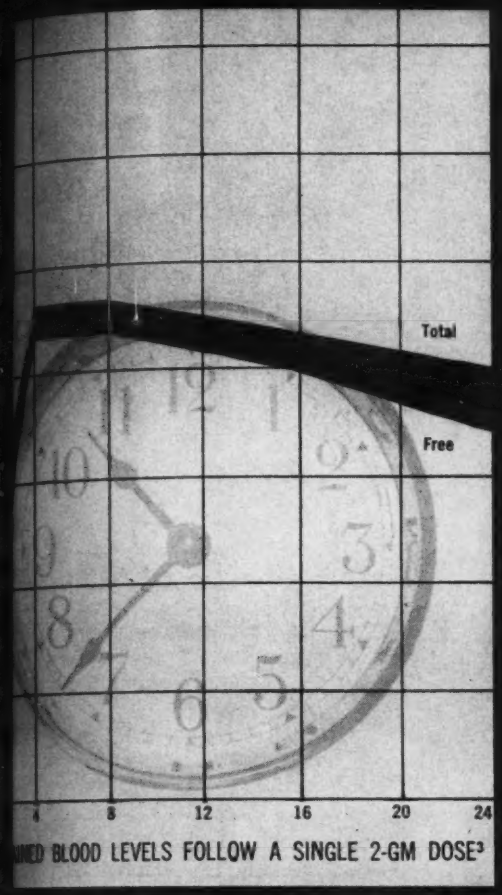

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three therapies of choice for infected / inflamed / painful ears

Rarely Sensitizing

1 'AEROSPORIN'® brand Otic Solution

Comprehensive bactericidal/antifungal action — eradicates *Pseudomonas* and most other common causes of otitis. Hygroscopic; restores normal acid mantle.

Each cc. contains:
'Aerosporin' brand Polymyxin B Sulfate ..... 10,000 Units
Acetic acid 1%
Propylene Glycol q.s. Sterile
Available in dropper bottles of 10 cc.

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Acts quickly to relieve pain and itching associated with otitis externa. Bactericidal/antifungal action — eradicates *Pseudomonas* and most other common causes of otitis. Hygroscopic; restores normal acid mantle.

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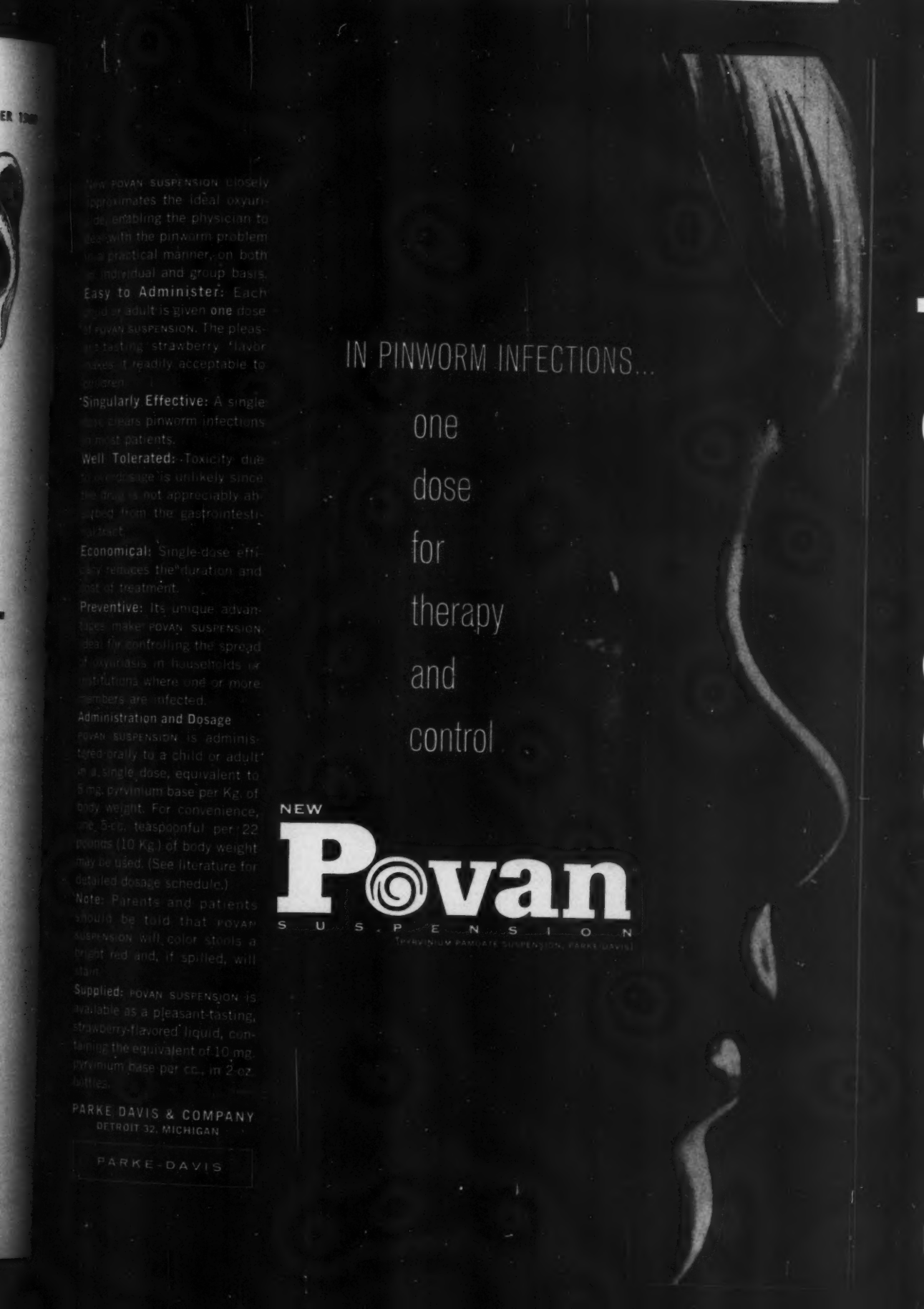

New POVAN SUSPENSION closely approximates the ideal oxyuricide, enabling the physician to deal with the pinworm problem in a practical manner, on both an individual and group basis.

Easy to Administer: Each child or adult is given **one** dose of POVAN SUSPENSION. The pleasant-tasting strawberry flavor makes it readily acceptable to children.

Singularly Effective: A single dose clears pinworm infections in most patients.

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Preventive: Its unique advantages make POVAN SUSPENSION ideal for controlling the spread of oxyuriasis in households or institutions where one or more members are infected.

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POVAN SUSPENSION is administered orally to a child or adult in a single dose, equivalent to 5 mg. pyrvinium base per Kg. of body weight. For convenience, one 5-cc. teaspoonful per 22 pounds (10 Kg.) of body weight may be used. (See literature for detailed dosage schedule.)

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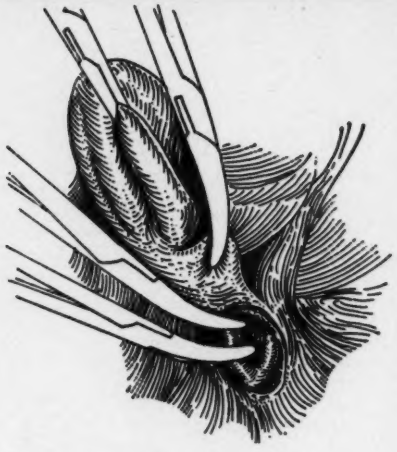

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He may be told that, among animals of similar dietary habits and digestive processes, some have a gallbladder and some do not. Among the herbivores, the cow and sheep have one, the deer and horse do not; among the omnivores, the mouse has one but the rat does not.

Source: **Farris, J. M., and Smith, G. K.: M. Clin. North America *43*:1133 (July) 1959.**

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"Constant loss of bile [from relaxation of sphincter of Oddi following cholecystectomy] reduces the amounts available for lipid absorption after meals, with resulting clinical symptoms apparently relieved by bile acid administration."
Source: Popper, H., and Schaffner, F.: Liver: Structure and Function, New York, McGraw-Hill 1957, p. 309.

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Buffers in Massengill Powder solution (pH 3.5 - 4.5) inhibit the neutralizing effect of an alkaline mucosa, maintaining a healthy, low pH for 4 to 6 hours in ambulant patients and up to 24 hours in recumbent patients. This low pH represses the propagation of candida, trichomonas vaginalis, and pathogenic bacteria but permits growth of the beneficial Döderlein bacillus. In contrast, an ordinary, unbuffered douche like vinegar is neutralized within 30 minutes after application. ● Low surface tension of Massengill Powder solution (50 dynes/cm.) enables it to penetrate and cleanse all the folds of the vaginal mucosa more effectively than vinegar (surface tension of 72 dynes/cm.). It also makes cell walls of infecting organisms more susceptible to therapy.

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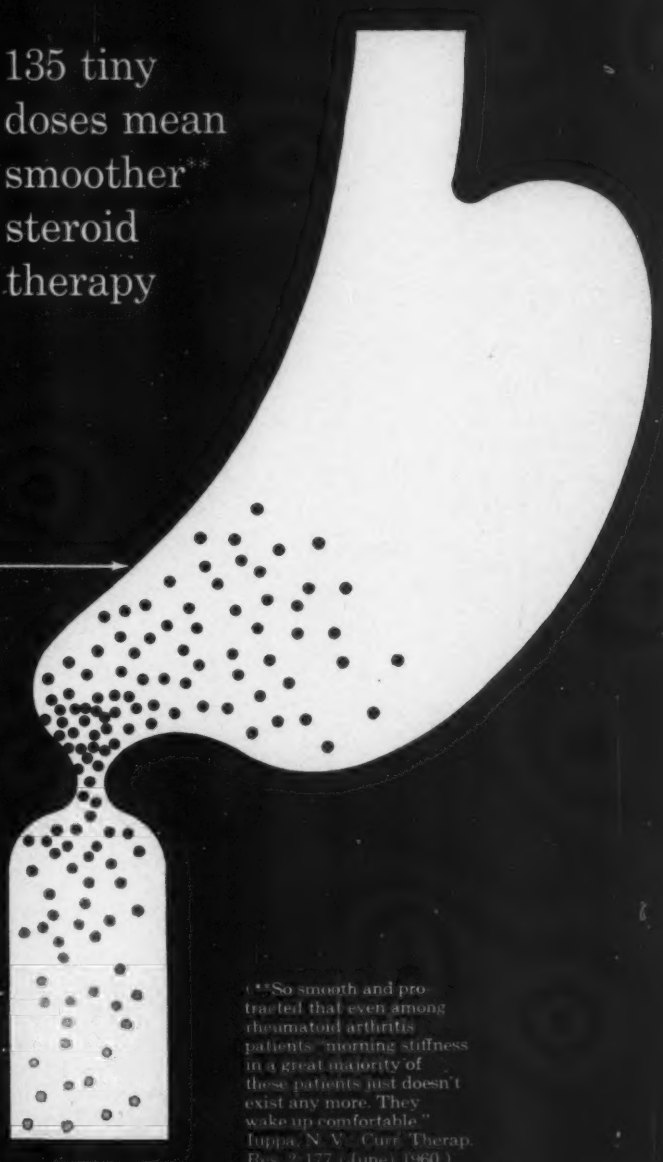
135 tiny doses mean smoother** steroid therapy



(**So smooth and protracted that even among rheumatoid arthritis patients "morning stiffness in a great majority of these patients just doesn't exist any more. They wake up comfortable." Iuppa, N. V.: Curr. Therap. Res. 2:177 (June) 1960.)

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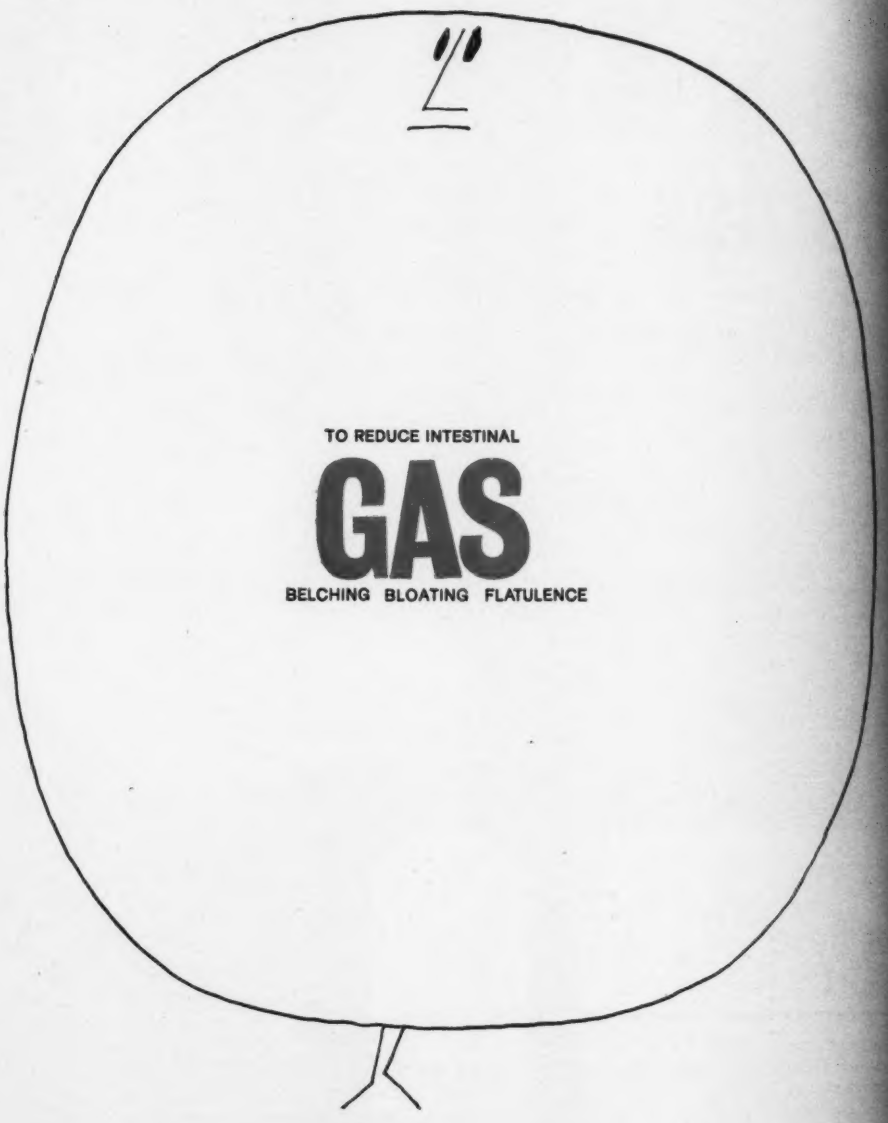

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When unaccustomed or too vigorous exertion results in disabling sprains or strains, PARAFLEX brings prompt relief. A proven skeletal muscle relaxant, PARAFLEX rapidly relieves pain and stiffness, improves function, and facilitates recovery. Just a single 1- or 2-tablet dose provides these benefits for up to 6 hours. PARAFLEX is equally effective in other musculoskeletal disorders, such as myositis, whiplash injuries, low back pain, and fibrositis. Side effects are rare, almost never require discontinuance of therapy.

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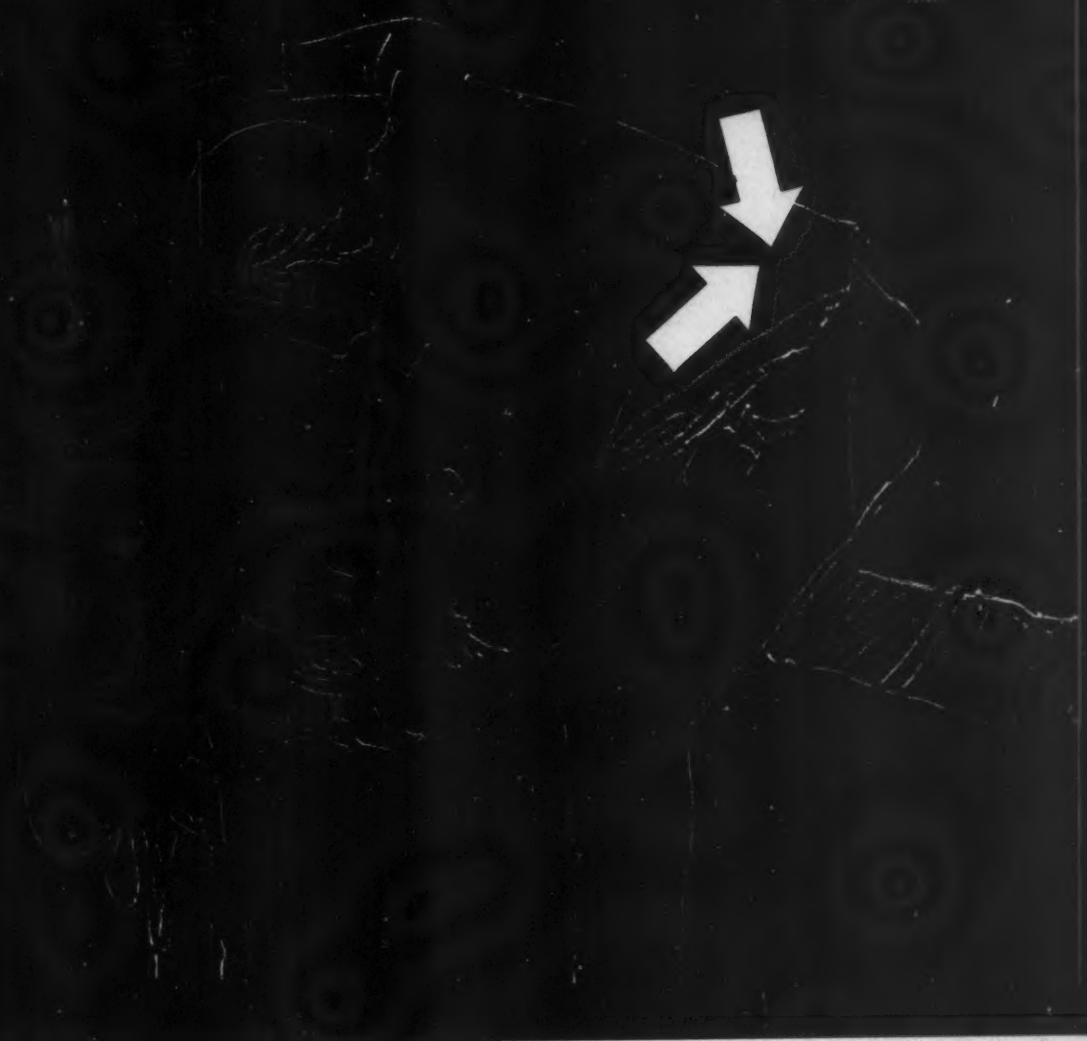

INCREASED LIFE EXPECTANCY FOR HYPERTENSIVES

"Life expectancy seems to be the one criterion that is most reliable and least questioned as a method of evaluating treatment for patients with elevated blood pressure."[1] "It is evident that effective therapy of hypertension will prolong the life of the patient by preventing the dreaded complications of this disease in the brain, the heart and the kidneys ." "There is no doubt of the prolongation of life in group 3 and 4 (Keith-Wagener-Barker) by adequate antihypertensive treatment. Some authorities report a 50 per cent, five year survival ratio for treated patients with malignant hypertension as against a 1 per cent survival ratio for untreated patients."[9]

Evaluation based on life expectancy is extremely difficult because of the peril of maintaining an untreated control group.[1] The doctor, however, can evaluate the symptoms related to the elevated blood pressure. . . . We know that retinopathy may improve, the heart may be reduced in size, the electrocardiogram may improve and in favorable cases the blood urea nitrogen level may fall.[2] These are reasonably objective criteria on which to base one's evaluation of treatment.[1]

On the succeeding page is evidence that Unitensen included in any therapeutic regimen may improve the results in hypertension as measured by a regression of objective clinical changes in a substantial proportion of the patients treated.

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Unlike diuretics or ganglionic blocking agents, Unitensen lowers blood pressure through widespread vasorelaxation. Normal vasomotor responses are not altered, and there is no venous pooling with resulting postural hypotension.[3-5] Through alleviation of cerebral vasospasm, Unitensen promotes cerebral blood flow and oxygen utilization.[6-9] Furthermore, Unitensen increases cardiac efficiency, improves renal function and tends to arrest the progress of vascular damage.[3, 4, 10]

Progress of Objective and Subjective Symptoms in Grades III and IV Hypertension Following Treatment with Unitensen and Unitensen-R

Observations in Patients* Treated up to 2 Years

The Course of Subjective Symptoms

Symptom	Number**	Improved	% Improved
Headache	27	21	77.7
Palpitation	20	13	65.0
Angina	15	9	60.0
Dyspnea	17	8	47.0

Objective Changes Following Treatment

Finding	Number**	Improved	% Improved
Funduscopic Changes	41	24	58.5
Enlarged Heart	20	13	65.0
Abnormal ECG	37	10	27.0
Proteinuria	31	12	38.7
Nitrogen Retention	17	6	35.2

Left hand charts from Clinical Exhibit "The Ambulatory Patient with Hypertension" presented AMA Convention, San Francisco, June 22-27, 1958, by B. M. Cohen, M.D.

*All patients in this study were initially classified as Smithwick Grades III and IV.

**Expressed as the number of patients exhibiting the symptom recorded.

Observations in Patients* Treated up to 3½ Years

The Course of Subjective Symptoms

Number**	Improved	% Improved
43	38	88.0
29	19	65.5
21	16	76.0
27	14	51.0

Objective Changes Following Treatment

Number**	Improved	% Improved
59	38	66.0
35	23	65.7
45	25	55.5
43	27	62.7
28	10	35.7

Right hand charts include patients previously reported who had been continuously maintained on Unitensen and Unitensen-R, plus additional patients later added to the study. From Clinical Exhibit "The Office Diagnosis and Treatment of the Patient with Hypertension" presented American Academy of General Practice, Indianapolis, March 18-19, 1959, by B. M. Cohen, M.D.

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Each tablet contains: Cryptenamine (tannates) 2.0 mg.

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Each tablet contains: Cryptenamine (tannates) 1.0 mg., Phenobarbital 15 mg.

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Each tablet contains: Cryptenamine (tannates) 1.0 mg., Reserpine 0.1 mg.

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Each cc. contains: 2.0 mg. cryptenamine (acetates) in isotonic saline

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a new class of drug
for the relief of pain and muscle tension

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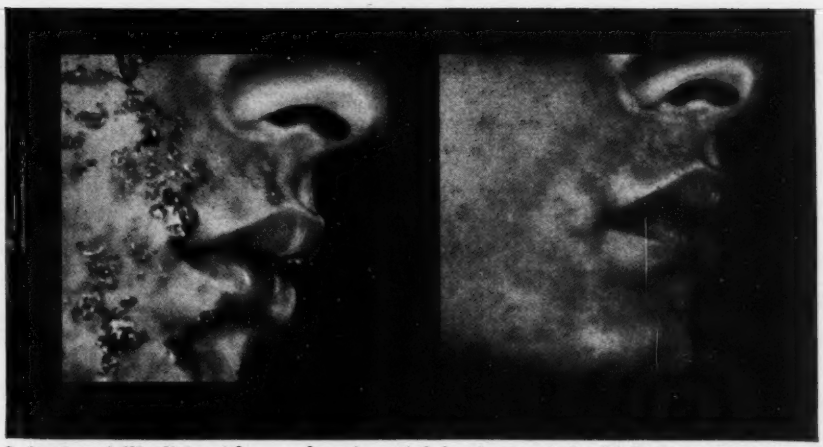

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Special Formulations for Eye, Ear, Nose

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(PHENOBARBITAL AND NATURAL BELLADONNA ALKALOIDS)

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Ingredient	Barbidonna Elixir & Tablets	Barbidonna No. 2 Tablets	Barbidonna D.A. Tablets
	per fl. dm. or tablet	Per Tablet	Per Tablet
Phenobarbital	¼ gr. (16 mg.)	½ gr. (32 mg.)	¼ gr. (16 mg.)
Hyoscyamine Sulfate	0.1286 mg.	0.1286 mg.	0.1286 mg.
Atropine Sulfate	0.0250 mg.	0.0250 mg.	0.0250 mg.
Hyoscine Hydrobromide	0.0074 mg.	0.0074 mg.	0.0074 mg.

Barbidonna D.A. tablets in a.c. dosage release the alkaloids immediately before the meal and phenobarbital after the meal.

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You see an improvement within a few days
Thanks to your prompt treatment and the smooth action of Deprol, her depression is relieved and her anxiety and tension calmed – *often in a few days.* She eats well, sleeps well and soon returns to her normal activities.

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Balances the mood – no "seesaw" effect of amphetamine-barbiturates and energizers. While amphetamines and energizers may stimulate the patient – *they often aggravate anxiety and tension.*

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In contrast to such "seesaw" effects, Deprol's smooth, *balanced* action lifts depression as it calms anxiety – both at the same time.

Acts swiftly – the patient often feels better, sleeps better, within a few days. Unlike the delayed action of most other antidepressant drugs, which may take two to six weeks to bring results, Deprol relieves the patient quickly –often within a few days. Thus, the expense to the patient of long-term drug therapy can be avoided.

Acts safely – no danger of liver damage. Deprol does not produce liver damage, hypotension, psychotic reactions or changes in sexual function–frequently reported with other antidepressant drugs.

Bibliography *(13 clinical studies, 858 patients)*: **1.** Alexander, L. (35 patients): Chemotherapy of depression – Use of meprobamate combined with benactyzine (2-diethylaminoethyl benzilate) hydrochloride. J.A.M.A. 166:1019, March 1, 1958. **2.** Bateman, J. C. and Carlton, H. N. (50 patients): Meprobamate and benactyzine hydrochloride (Deprol) as adjunctive therapy for patients with advanced cancer. Antibiotic Med. & Clin. Therapy 6:648, Nov. 1959. **3.** Beerman, H. M. (44 patients): The treatment of depression with meprobamate and benactyzine hydrochloride. Western Med. 1:10, March 1960. **4.** Bell, J. L., Tauber, H., Santy, A. and Pulito, F. (77 patients): Treatment of depressive states in office practice. Dis. Nerv. System 20:263, June 1959. **5.** Breitner, C. (31 patients): On mental depressions. Dis. Nerv. System 20:142, (Section Two), May 1959. **6.** Gordon, P. E. (50 patients): Deprol in the treatment of depression. Dis. Nerv. System 21:215, April 1960. **7.** Landman, M. E. (50 patients): Clinical trial of a new antidepressive agent. J. M. Soc. New Jersey. In press, 1960. **8.** McClure, C. W., Papas, P. N., Speare, G. S., Palmer, E., Slattery, J. J., Konefal, S. H., Henken, B. S., Wood, C. A. and Ceresia, G. B. (128 patients): Treatment of depression – New technics and therapy. Am. Pract. & Digest Treat. 10:1525, Sept. 1959. **9.** Pennington, V. M. (135 patients): Meprobamate-benactyzine (Deprol) in the treatment of chronic brain syndrome, schizophrenia and senility. J. Am. Geriatrics Soc. 7:656, Aug. 1959. **10.** Rickels, K. and Ewing, J. H. (35 patients): Deprol in depressive conditions. Dis. Nerv. System 20:364, (Section One), Aug. 1959. **11.** Ruchwarger, A. (87 patients): Use of Deprol (meprobamate combined with benactyzine hydrochloride) in the office treatment of depression. M. Ann. District of Columbia 28:438, Aug. 1959. **12.** Settel, E. (52 patients): Treatment of depression in the elderly with a meprobamate-benactyzine hydrochloride combination. Antibiotic Med. & Clin. Therapy 7:28, Jan. 1960. **13.** Splitter, S. R. (84 patients): Treatment of the anxious patient in general practice. J. Clin. & Exper. Psychopath. In press, April-June 1960.

▲Deprol▲®

Dosage: Usual starting dose is 1 tablet q.i.d. When necessary, this dose may be gradually increased up to 3 tablets q.i.d.

Composition: 1 mg. 2-diethylaminoethyl benzilate hydrochloride (benactyzine HCl) and 400 mg. meprobamate.
Supplied: Bottles of 50 light-pink, scored tablets. Write for literature and samples.

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You can see for yourself the efficient detergent action of Trichotine solution in reducing promptly a cervical plug (using a saturated cotton pledget), or washing away the "cheesy" exudate of monilia.

TRICHOTINE is just as effective for therapeutic irrigation by your patient at home

The same qualities – detergency,* antisepsis, healing – make Trichotine ideal for the treatment of cervico-vaginitis and leukorrheas, alone or in conjunction with other antimicrobials. In the itching, burning, and foul odor of non-specific vaginitis and leukorrhea the action of Trichotine is immediate and gratifying to the patient.

The more you expect of a douche, the more you will use Trichotine in the office and prescribe it for home irrigation, and recommend it as well for postmenstrual and postcoital hygiene.

The modern detergent douche

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ACTS FASTER—usually within 5-15 minutes. **LASTS LONGER**—usually 6 hours or more. **MORE THOROUGH RELIEF**—permits uninterrupted sleep through the night. **RARELY CONSTIPATES**—excellent for chronic or bedridden patients.

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Each PERCODAN® Tablet contains 4.50 mg. dihydrohydroxycodeinone hydrochloride, 0.38 mg. dihydrohydroxycodeinone terephthalate, 0.38 mg. homatropine terephthalate, 224 mg. acetylsalicylic acid, 160 mg. phenacetin, and 32 mg. caffeine.

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ANTIGO VERTS STOPIANT

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ANTIVERT STOPS VERTIGO
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Remission in 82%; relief in 92%. So reports an investigator who recently studied ANTIVERT in dizziness.[1] After studying 50 patients, Scal concluded that "Those with Meniere's syndrome who were given the preparation [ANTIVERT] in the early stages of this condition, reported prompt improvement in the relief of dizziness, headaches and tinnitus."[1]

ANTIVERT combines meclizine (12.5 mg.) with nicotinic acid (50 mg.). Prescribe one ANTIVERT tablet before each meal for relief of Meniere's syndrome, arteriosclerotic vertigo, labyrinthitis, and vertigo of nonspecific origin.

Supplied: In bottles of 100 blue-and-white scored tablets. Prescription only.

Reference: 1. Scal, J. C.: Eye Ear Nose & Throat Month. 38:738 (Sept.) 1959.

Antivert®

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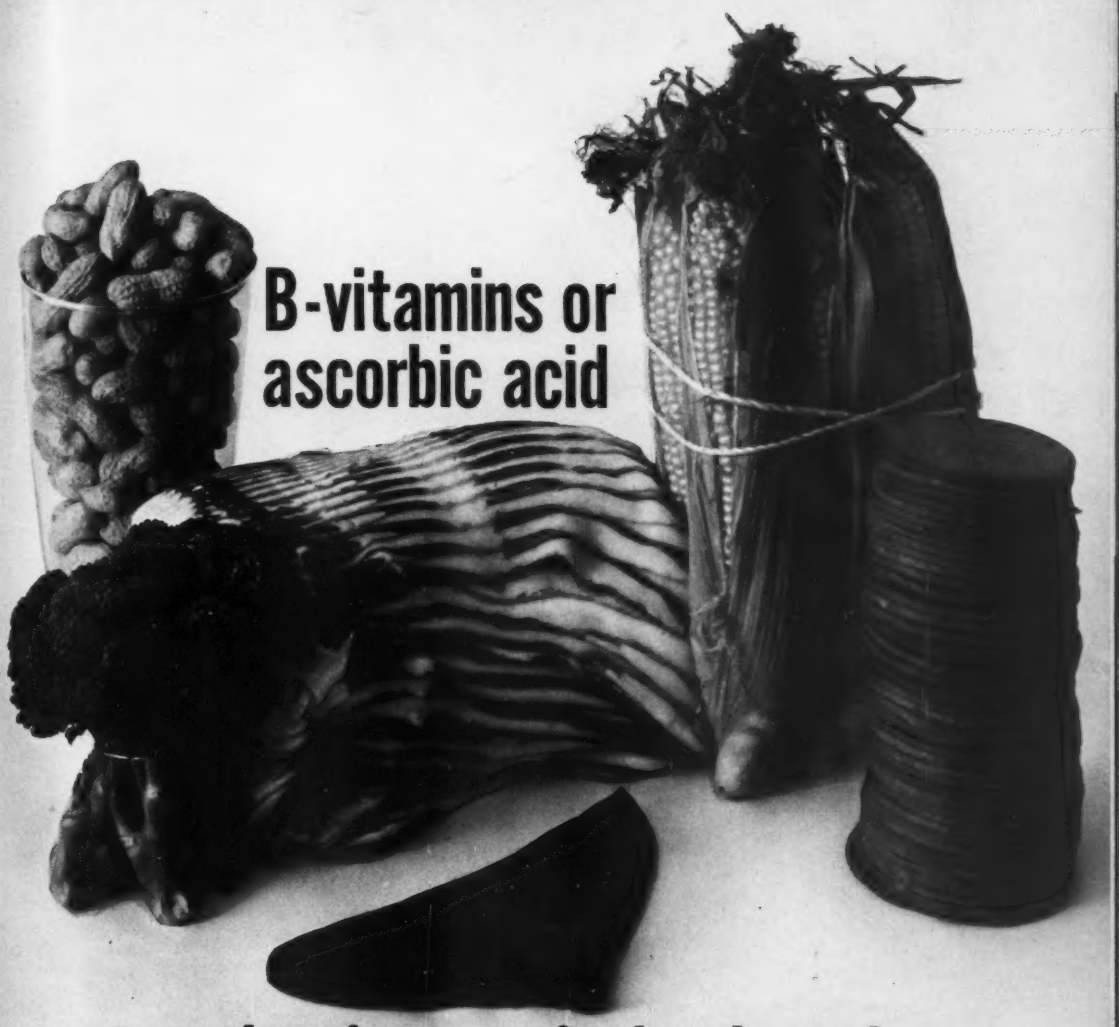
Division, Chas. Pfizer & Co., Inc.
Science for the World's Well-Being™

and to help combat the nutritional problems of aging... NEOBON® capsules five-factor geriatric supplement



saturation doses – the hard way!

Each of these food portions contains a saturation dose of one of the water-soluble B vitamins or C. The easy way to provide such quantities of these vitamins with speed, safety and economy is to prescribe Allbee with C. Recommended in pregnancy, deficiency states, digestive dysfunction and convalescence.

In each Allbee with C:		As much as:*
Thiamine mononitrate (B_1)	15 mg.	6.9 lbs. of fried bacon
Riboflavin (B_2)	10 mg.	31½ ozs. of liverwurst
Pyridoxine HCl (B_6)	5 mg.	2 lbs. of yellow corn
Nicotinamide	50 mg.	11 ozs. of roasted peanuts
Calcium pantothenate	10 mg.	¼ lb. of fried beef liver
Ascorbic acid (Vitamin C)	**250 mg.**	¾ lb. of cooked broccoli

*These common foods are among the richest sources of B vitamins and ascorbic acid. H. A. Wooster, Jr., **Nutritional Data**, 2nd Ed., Pittsburgh, 1954.

Allbee® with C

Robins

A. H. ROBINS COMPANY, INC.
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the beauty of these antitussives:

they help the cough remove its cause

These elegant antitussives comprise a group of significantly superior expectorants from which you may select the formula best suited for your coughing patient.

First of all, they have more in common than mere delectability to eye and palate: they all include *glyceryl guaiacolate*. This remarkable expectorant aids the coughing mechanism by increasing the secretion of Respiratory Tract Fluid,[1] which helps liquefy sputum,[1,3] makes bronchial and tracheal cilia more efficient,[1,2] and acts as a demulcent.[1,3-5] Through its effects, all four expectorants promote the natural purpose of the cough, which is to remove the irritants that cause it.[1,2]

In addition, the Robins antitussive armamentarium provides a choice of widely accepted drugs in various combinations with glyceryl guaiacolate for treating different kinds of coughs and associated symptoms. For antihistaminic effects, there is Dimetane® or prophenpyridamine; for bronchodilation and nasal decongestion, there are sympathomimetic agents; and for suppression of the "too frequent" cough, there is codeine or dihydrocodeinone.

Robitussin®

Each teaspoonful contains:

Glyceryl guaiacolate ..... 100 mg.

Robitussin® A-C

Each teaspoonful contains:

Glyceryl guaiacolate ..... 100 mg.
Prophenpyridamine maleate ... 7.5 mg.
Codeine phosphate ..... 10 mg.
(exempt narcotic)

Dimetane® Expectorant

Each teaspoonful contains:

Parabromdylamine maleate (DIMETANE) ..... 2 mg.
Glyceryl guaiacolate ..... 100 mg.
Phenylephrine HCl, USP ..... 5 mg.
Phenylpropanolamine HCl, NNR ..... 5 mg.

Dimetane® Expectorant-DC

Each teaspoonful contains the Dimetane Expectorant formula *plus* Dihydrocodeinone bitartrate, NF ..... 1.8 mg.
(exempt narcotic)

References: 1. Cass, L. J., and Frederik, W. S.: Am. Pract. & Digest Treat. *2*:844, 1951. 2. Blanchard, K., and Ford, R. A.: Journal-Lancet *74*:443, 1954. 3. Hayes, E. W., and Jacobs, L. S.: Dis. Chest *30*:441, 1956. 4. Blanchard, K., and Ford, R. A.: Rocky Mountain M. J., Vol. 52, No. 3, 1955. 5. Boyd, E. M., and Pearson: Am. J. M. Sc. *211*:602, 1946.

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new chemically improved penicillin which provides the highest blood levels that are obtainable with oral penicillin therapy

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With Chemipen it becomes possible as well as convenient for the physician to achieve and maintain higher blood levels—with greater speed—than those produced with comparable therapeutic doses of potassium penicillin V. In fact, Chemipen is shown to have a 2:1 superiority in producing peak blood levels over potassium penicillin V.*

Extreme solubility may contribute to the higher blood levels that are so notable with Chemipen.* Equally notable is the remarkable resistance to acid decomposition (Chemipen is stable at 37°C. at pH 2 to pH 3), which in turn makes possible the convenience of oral treatment.

And the economy for your patients will be of particular interest—Chemipen costs no more than comparable penicillin V preparations.

Dosage: Doses of 125 mg. (200,000 u.) or 250 mg. (400,000 u.), t.i.d., depending on the severity of the infection. The usual precautions must be carefully observed with Chemipen, as with all penicillins. Detailed information is available on request from the Professional Service Department.

Supply: Chemipen Tablets of 125 mg. (200,000 u.) and 250 mg. (400,000 u.), bottles of 24 tablets. Chemipen Syrup (cherry-mint flavored, nonalcoholic), 125 mg. per 5 cc., 60 cc. bottles.

*Knudsen, E. T., and Rolinson, G. N.: Lancet 2:1105 (Dec. 19) 1959.

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Squibb Quality—the Priceless Ingredient

In over five years

...for the tense and nervous patient

Despite the introduction in recent years of "new and different" tranquilizers, Miltown continues, quietly and steadfastly, to gain in acceptance. Meprobamate (Miltown) is prescribed by the medical profession more than any other tranquilizer in the world.

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Outstandingly Safe

1 simple dosage schedule produces rapid, reliable tranquilization without unpredictable excitation

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meprobamate (Wallace)

Usual dosage: One or two 400 mg. tablets t.i.d.
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Butazolidin

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Proved by a Decade of Experience
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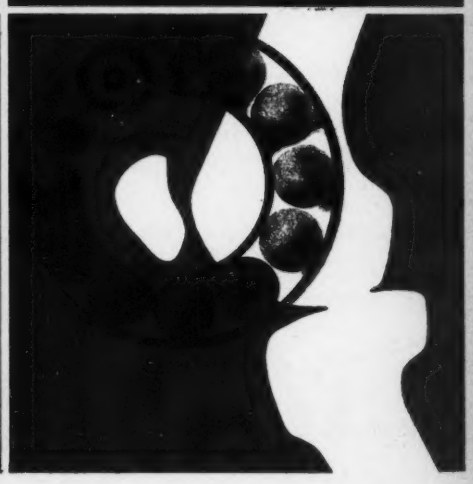

162-60

IN ANXIETY—RELAXATION RATHER THAN DROWSINESS

STELAZINE®

brand of trifluoperazine

'Stelazine' has little if any soporific effect. "... patients who reported drowsiness as a side effect mentioned that they did not fall asleep when they lay down for a daytime nap. It is quite possible that, in some instances, 'drowsiness' was confused with unfamiliar feelings of relaxation."[1]

Available for use in everyday practice: Tablets, 1 mg., in bottles of 50 and 500; and 2 mg., in bottles of 50.

N.B.: For information on dosage, side effects, cautions and contraindications, see available comprehensive literature, PDR, or your S.K.F. representative.

1. Goddard, E.S.: in *Trifluoperazine, Further Clinical and Laboratory Studies*, Philadelphia, Lea & Febiger, 1959.

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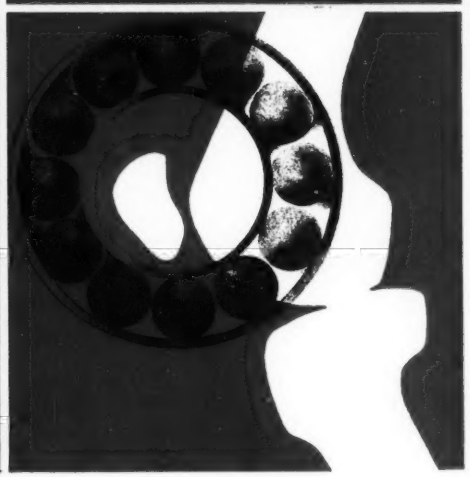

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1. Goddard, E.S.: in *Trifluoperazine, Further Clinical and Laboratory Studies*, Philadelphia, Lea & Febiger, 1959.

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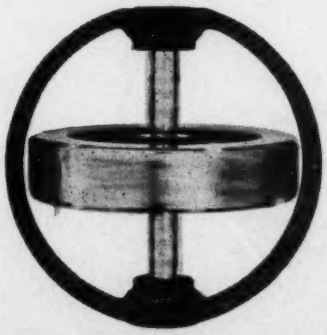
unsurpassed for total corticosteroid benefits

Arist

Substantiated by published reports of leading clinicians:

- effective control of inflammatory and allergic symptoms[1-3, 7, 8, 12-15, 17, 18]



- biochemical and psychic balance disturbance minimal[1, 4-18]

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All corticosteroids provide symptomatic control in rheumatoid arthritis, bronchial asthma and inflammatory dermatoses. They *differ* in the frequency and severity of side effects. Introduced in 1958, ARISTOCORT Triamcinolone bore the promise of high efficacy and relative safety.

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NEW FURACIN®-HC CREAM

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INFECTED AND POTENTIALLY INFECTED DERMATOSES / PYODERMAS / ULCERS
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FURACIN-HC Cream combines the anti-inflammatory and antipruritic effect of hydrocortisone with the dependable antibacterial action of FURACIN®, brand of nitrofurazone—the most widely prescribed single topical antibacterial. The broad bactericidal range of FURACIN includes stubborn staphylococcal strains, and there has been no development of significant bacterial resistance after more than a dozen years of widespread clinical use. FURACIN is gentle to tissues, does not retard healing; its low sensitization rate is further minimized by the presence of hydrocortisone.

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1,928 published cases in the two years since TAO was released for general use show:

94.3% effectiveness in respiratory infections (617 cases including tonsillitis, staphylococcal and streptococcal pharyngitis, bronchitis, infectious asthma, broncho-pneumonia, lobar pneumonia, bronchiectasis, lung abscess, otitis.) **You can count on TAO.**

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75.8% effectiveness in diverse infections (62 cases including fever of undetermined origin, peritoneal abscess, osteitis, periarthritis, septic arthritis, staphylococcal enterocolitis, gastroenteritis, carriers of staphylococci.) **You can count on TAO.**

95.6% of 1,928 cases free of side effects—in the remaining 4.4%, reactions were chiefly mild gastrointestinal disturbances which seldom necessitated discontinuance of therapy.

*In 884 of 1,928 cases the causative organisms were mostly staphylococci. The majority of clinical isolates were found to be resistant to at least one of the commonly used antibiotics and many patients had failed to respond to previous therapy with one or more antibiotics. **TAO proved 93.4% effective in these 884 cases.**

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NOTE: In some children, when TAO was administered at considerably higher than therapeutic levels for extended periods, transient-jaundice and other indications of liver dysfunction have been noted. A rapid and complete return to normal occurred when TAO was withdrawn.

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OTHER TAO FORMULATIONS ALSO AVAILABLE: TAO®-AC (Tao, analgesic, antihistaminic compound) capsules, bottles of 36. TAOMID® (Tao with Triple Sulfas)—tablets, bottles of 60. Oral Suspension—60 cc. bottles.

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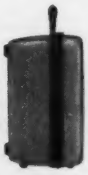
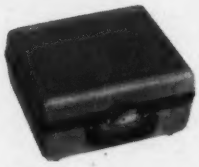
18 pounds,  instrument and accessories

Brief-case size 

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Complete diagnostic accuracy

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One reason that many cases of hypertension respond to Serpasil is that many cases are associated with stress. Stress situations produce stimuli which pass through the sympathetic nerves, constricting blood vessels, and increasing heart rate. Hyperactivity of the sympathetic nervous system may elevate blood pressure; if prolonged, this may produce frank hypertension. By blocking the flow of excessive stimuli to the sympathetic nervous system, Serpasil guards against stress-induced vasoconstriction, brings blood pressure down slowly and gently.

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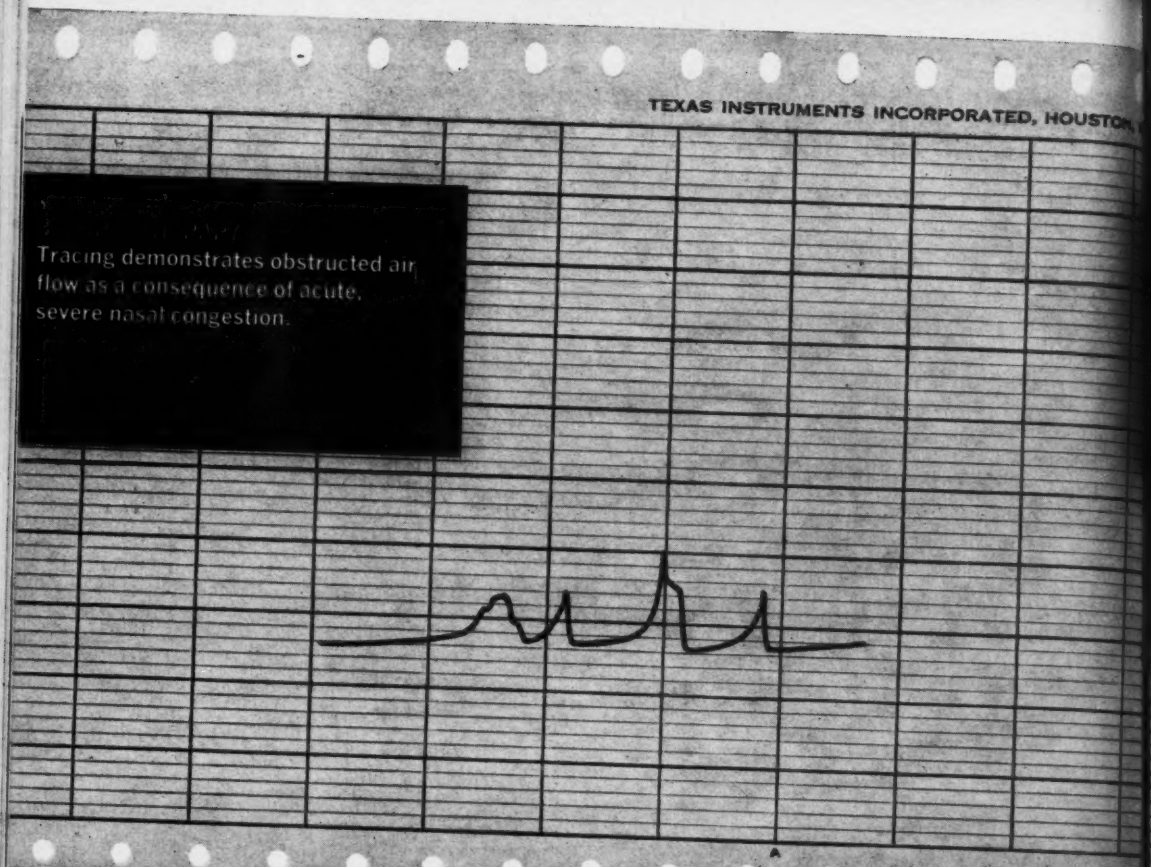
CIBA
SUMMIT, N. J.

*Coan, J. P., McAlpine, J. C., and Boone, J. A.: J. South Carolina M. A. 51:417 (Dec.) 1955.

Complete information available on request.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Tracing demonstrates obstructed air flow as a consequence of acute, severe nasal congestion.

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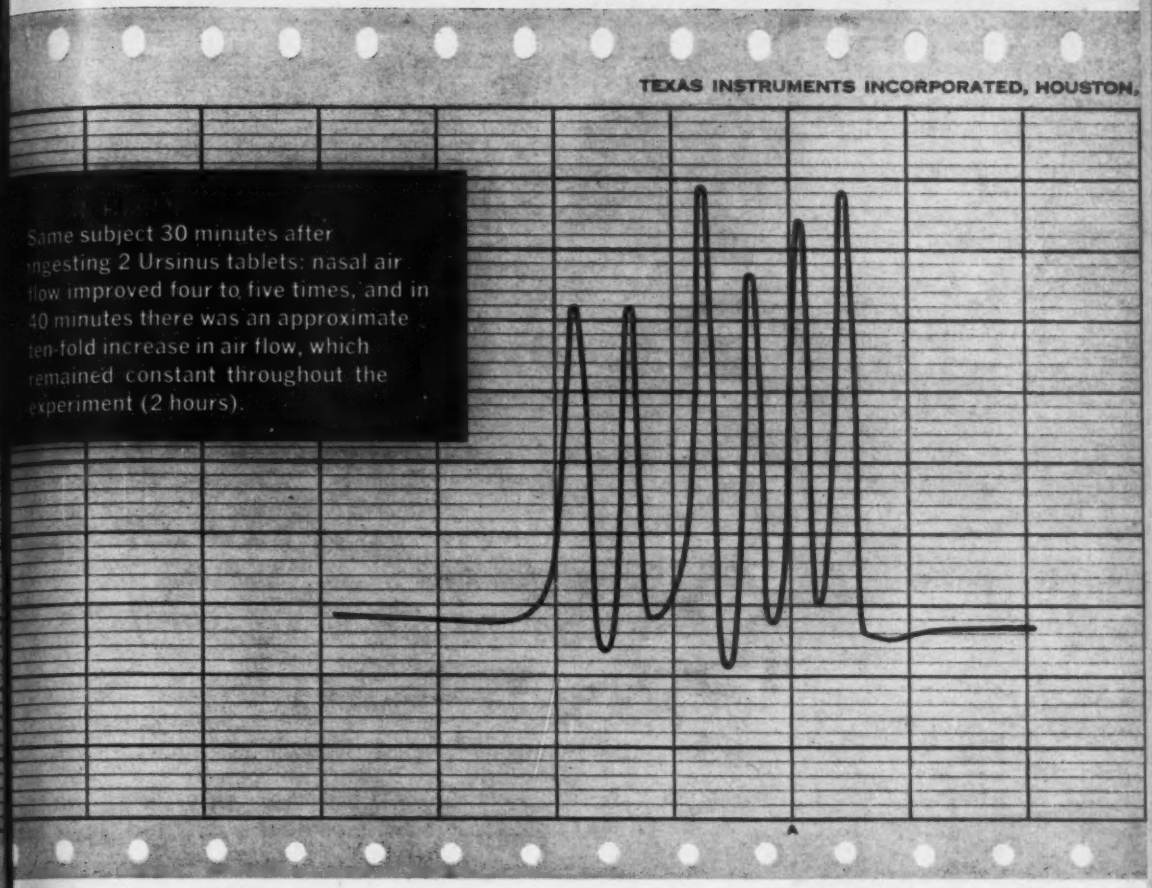
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As an oral decongestant with antiallergic and antiinflammatory action, URSINUS shrinks edematous-congested turbinates, opens obstructed ostia, re-establishes sinus drainage and nasal patency. Pain, produced by pressure from retained sinus secretions and engorged turbinates, is promptly and effectively relieved over a prolonged period of time.

Each URSINUS Inlay-Tab contains: phenylpropanolamine HCl, 25 mg.; pheniramine maleate, 12.5 mg.; pyrilamine maleate 12.5 mg.; Calurin® (calcium acetylsalicylate carbamide, equiv. to aspirin 300 mg.) Dose: 1 or 2 tablets every 4 to 6 hours. Supplied in bottles of 100 URSINUS tablets.

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uterine relaxation with no side effects

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NO INCREASE IN PRICE

Lutrexin is widely used in the treatment of — dysmenorrhea, premature labor, threatened and habitual abortion.

Continued reports from clinical investigators indicate highly successful results with larger doses of Lutrexin.

Process improvement has enabled us to now offer a *3000 unit tablet of Lutrexin at no increase in price.*

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in vivo measurement of LUTREXIN on contracting uterine muscle

Southern Medical Journal

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October 1960

Radium Attenuation in the Treatment of Carcinoma of the Cervix*

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The authors describe the radium attenuators they have used in application by the Fletcher technic.

NUMEROUS RADIUM APPLICATORS have been described for use in the treatment of carcinoma of the uterine cervix. The loading of these applicators is varied in an attempt to attain certain dosage levels in the region of the cervix, vaginal fornices and parametrial areas. The "Manchester method," as it is commonly referred to, is a well-known example. It is built upon a system in which the loading of the vaginal applicators and tandems is varied in certain ratios.

The "Manchester method," as described by Tod and Meredith[1] in 1938 and revised in 1953,[2] has three main features: (1) selection and definition of two points, A and B for dosage specifications; (2) the use of thin uterine tubes and of ovoids measuring 2, 2.5 and 3 cm. in diameter; and (3) a loading system which varies in a simple number of units to keep the dosage rate fairly constant to point A.

Fletcher and associates[3,4] have described the desired characteristics of an applicator. In an attempt to attain these characteristics, he has developed applicators with scissor-like handles which extend outside the introitus, facilitating the insertion of the applicators and maintaining them in place. These applicators have taken his name and are referred to as the Fletcher ovoids. Internal screens are provided to reduce the dose delivered to the bladder and rectum. For economy, the single pair of 2 cm. metal cylinders can be fitted with plastic jackets to increase their size to 2.5 and 3 cm. in diameter. Fletcher based his dosage technic on the "Manchester method." Since he found that the presence of the metal walls reduced the dose by less than 5% below that given by the Manchester ovoids, no changes in the actual treatment periods were made.

When radium alone is used in the treatment of carcinoma of the cervix, there is no uniformity of dose over a large zone, since the treatment is intracavitary and the dose rate is falling from within outwards. The greatest advantage of radium lies in concentrating the dose where it is needed most, in the cervix, vaginal fornices, uterus and in the paracervical tissues. Therefore, in any dosage system, there must be certain points of reference which are of some significance clinically and representative of the whole treatment. If these points are fairly well defined, a theoretical comparison of dose rates of any particular system with others can be made. Such a point is point A, as described and revised by Tod and Meredith.[1,2] It gives an average figure of the dose received throughout a considerable zone and is of some clinical significance since it is in the paracervical

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triangle, approximately in the area of the crossing of the ureter and uterine artery. This point is 2 cm. up from the lowest point of the lowest cell of the tandem and 2 cm. laterally from the axis of the tube. According to Paterson,[5] this is the limiting point of tolerance in the treatment of carcinoma of the cervix and for that reason dosages may be described in terms of a dose to point A. Point B, which is 3 cm. lateral to point A, is of less significance since the dosage at this point is relatively small with radium alone. It is of more importance in combined therapy. By using A as the point of limiting tolerance, it is possible to build up the dosage to point B by using larger applicators with further separation of the centers to increase the lateral dose. Larger applicators also lessen the dose received by the vaginal mucosa, thereby increasing the relative depth dose.*[1,2,5,6]

The respective loading of the ovoids and tandems is not fixed. Tod and Meredith,[2] in their revised Manchester system, however, have recommended certain loading ratios to keep a fairly constant dose rate at point A, no matter what combination of ovoids and tandem is used. There should also be a suitable ratio between the contributions to the dose rate at point A from the intra-uterine and vaginal radium. This is considered to be approximately 1.6 to 1. They describe the loadings in simple units, recommending 7, 8 and 9 units for the small, medium and large ovoids respectively. They recommend loading of 6, 4 and 4 units for the long and 6 and 4 units for the medium tandems. For the non-standard treatment, a single cell of 8 units was recommended. To deliver a dose of 8,000 r. in 144 hours, a dose rate of 55 r. per hour would be necessary. To achieve this dose with this unit system, it is necessary for a unit to be equal to 2.5 mg. of radium. Therefore, the suggested loading of the paired ovoids was 22.5, 20 and 17.5 mg. of radium for the large, medium and small ovoids respectively. Since these are not standard radium tubes, other methods of achieving the same dosage rates were suggested. This consisted of: (a) using 3 bunched tubes for the large and small ovoids and subtracting 10% for the cross filtration; (b) using different loadings at the two applications, for example, using 25 mg. tubes on one application and 20's on another in the large ovoids; (c) using cobalt-60 which could be made up into any strength, though this is not convenient owing to the short half-life of cobalt which would necessitate changing the treatment times as the cobalt decayed; and (d) using added extra filters of steel, gold, platinum, etc.[2]

Equipment and Materials

We have used the Fletcher ovoids approximately 400 times in over three years time. The early results have been good. The ovoids are loaded with 15, 20 and 25 mg. of radium respectively, in the small, medium and large ovoids. The dosage rate from the ovoids to point A with no more than 1 cm. separation varies over 25% with these particular loadings. For that reason, some other method of delivering a more constant dose to point A was considered.

With rigid applicators, such as the Fletcher applicator, the possibility of using some heavy metal attenuator with the largest radium capsule was considered. This was suggested by Tod in 1953, as described above, but apparently no actual use of this method has been developed.

Keeping in mind the loading suggested by Tod[2] of 22.5, 20 and 17.5 mg. of radium for the different sized ovoids, the thickness of sleeves of lead were calculated to deliver a fairly uniform dose to point A. They were machined to fit our standard 25 mg. radium tubes which are available commercially. This was satisfactory for decreasing the effective quantity of radium. Lead was found to be unsatisfactory for an attenuator, however, because it is too soft and difficult to machine.

We finally selected Mallory 1000 metal, an alloy of 90% tungsten, 6% nickel and 4% copper, because of its density, which averages 16.96 Gm. per cc. This alloy is about one and one-half times as dense as lead, is very hard, can be machined easily and does not corrode in cold sterilizing solutions. It

*See Figs. 2 & 3. A Banke Instantaneous dose rate meter was used to measure the dose rates at various distances from the center of the ovoids in the equatorial plane. The meter was calibrated to give readings in air agreeing with the values predicted from the Paterson and Parker line source data at a distance of 3 cm. from the axis of a source of active length 1 cm. provided with a wall of platinum alloy 1 mm. thick. The ovoid and conization chamber were immersed in water or embedded in unit density wax. Dose rates at points A and B were obtained by summing the measured dose rates at the appropriate distances from the centers of the ovoids.

is available commercially. Other metals with the required high densities are platinum, gold, osmium and their alloys. The cost of these metals is greater than Mallory 1000. The standard density of the material varies so slightly that it is of no real significance and with accurate machining, attenuators can be reduplicated so that the variation is less than the variation in the content of the nominal 25 mg. radium tubes. The physical measurements of these attenuators are seen in table 1.

We have preferred to call the shields *attenuators,* rather than shields or sleeves since they essentially weaken or attenuate the amount of radiation rather than filter it. Some filtration does take place, however, since the radiation from radium is not monochromatic.

No attenuator is necessary for the 25 mg. capsule itself in the large ovoid as the metal wall reduces the effective quantity to about 23.7 mg., and only a spacer is used to hold the radium centrally. Attenuators of two different thicknesses were made for the medium and small ovoids to hold a 25 mg. capsule. They were then fitted with Teflon covers to hold the radium centrally in the ovoids. This material has proven to be superior to other materials, such as Nylon, since it does not show any change in the cold sterilizing solution. The attenuators with their Teflon sleeves can also be autoclaved. We have had these attenuators fitted with the Teflon spacers reproduced outside the department, at a cost of less than one hundred dollars ($100.00) for the whole set (Fig. 1).

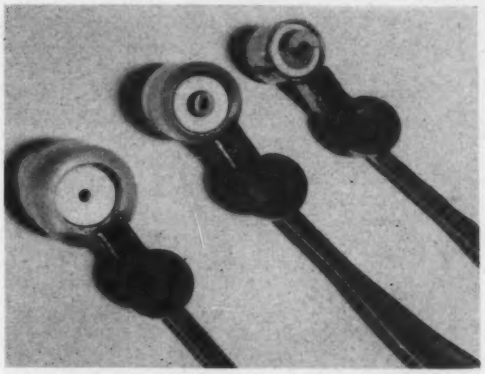
The equivalent quantity of radium in the large Fletcher ovoids required to give the same dose rate at point A is 23.7 mg. The medium ovoid with intermediate #1 Mallory 1000 attenuator, has the equivalent quantity of 20.7 mg. of radium. In the small ovoid with the #2 Mallory 1000 attenuator, the radium equivalent is 17.8 mg. Although definite measurements for the thickness of the

TABLE 1

DIMENSIONS OF MALLORY 1000 ATTENUATORS

	Outside Diameter	*Inside Diameter*	*Wall Thickness*
#1 Mallory 1000 Attenuator	7.72 mm.	3.66 mm.	2.03 mm.
#2 Mallory 1000 Attenuator	11.94 mm.	3.66 mm.	4.14 mm.

FIG. 1



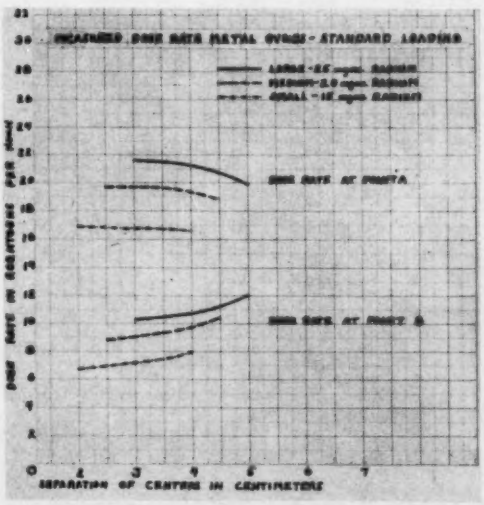
Revised loading of the Fletcher ovoids appropriately fitted from left to right—(a) large ovoid with thick plastic jacket and spacer only to hold the radium, (b) medium ovoid with the thin plastic jacket and #1 Mallory attenuator, and (c) small ovoid with no jacket and #2 Mallory attenuator.

Mallory 1000 are given, it is possible to vary the thickness so that the equivalent radium can be almost any strength that the operator desires or prefers within the limits imposed by the diameter of the ovoids.*

Figures 2 and 3 compare the dose rates to point A with the old and new revised loadings. It can be seen that with this method the

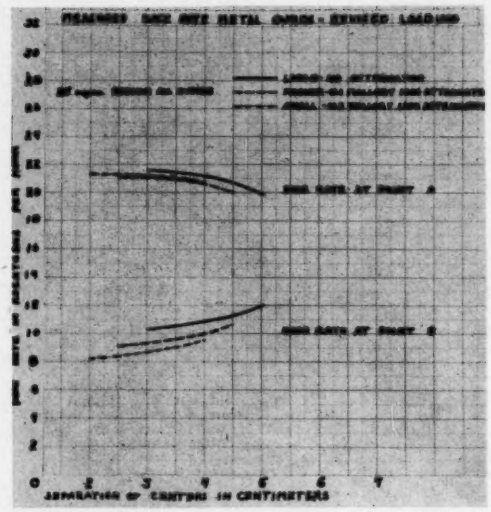
*This system has also been satisfactorily modified with new attenuators for use with individual 10 mg. and 5 mg. radium tubes so that the variation to point A and B is in the dosage range described.

FIG. 2



Measured dose in roentgens per hour to points A and B with loadings of 25, 20 and 15 mg. of radium in the large, medium and small ovoids respectively.

FIG. 3



Measured dose in roentgens per hour to points A and B with the revised loading of 25 mg. radium tube for the large, medium and small ovoids with the spacer, #1 Mallory 1000 attenuator and #2 Mallory 1000 attenuator respectively. The equivalent radium contents of the large, medium and small ovoids are 23.7, 20.7 and 17.9 mg. respectively.

variation in dose rate at point A is less than 4% with 1 cm. separation of the walls and less than 8%, with 2 cm. separation. In combination with all the different sized tandems, (Table 2) and normal separation of the three sizes of paired ovoids appropriately loaded with 25 mg. radium capsules and their attenuators, the dose rate varies up to 4% to point A. Actually, the dose rate in the paracervical triangle will vary individually with the patient's anatomy and the extent of her disease.

Using the *standard* times for the Manchester technic with radium alone, or 144 hours in two implants, the dosage varies from a minimum of 7,350 gamma roentgens to a maximum of 7,550 gamma roentgens. This is within the range of optimum dosage as suggested by Paterson.[5,7] With a combined technic of external therapy and 120 hours of radium, the radium dosage varies from 6,100 to 6,300 gamma roentgens. This also is considered to be in the optimum range.[5-7] These are the standard times with the Manchester technic and are given as an example of the dosage obtained and it is not the subject of this paper to discuss the values or merits of different dosage schedules.

TABLE 2

MEASURED DOSE RATES FROM THE TANDEMS

Tandem	*Loading*	*Point A*	*Point B*
Extra long metal	15, 10, 10, 10	34.0 r./hr.	8.7 r./hr.
Long plastic	15, 10, 10	33.6 r./hr.	8.3 r./hr.
Long metal	15, 10, 10	32.5 r./hr.	8.0 r./hr.
Medium plastic	15, 10	34.1 r./hr.	6.6 r./hr.
Medium metal	15, 10	32.8 r./hr.	6.3 r./hr.
Short plastic	15	21.6 r./hr.	4.1 r./hr.

These specific rates will vary slightly in other institutions depending on the active and over-all length of the radium tubes used.

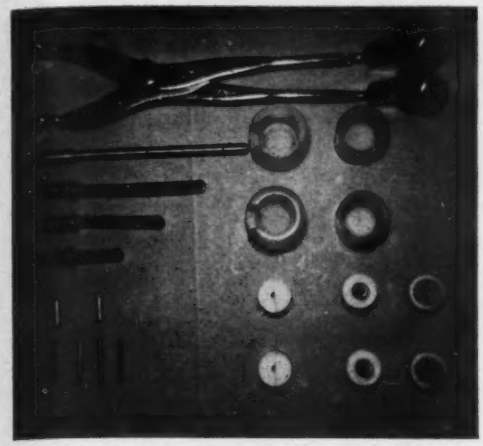
In the nonstandard treatment for carcinoma of the cervical stump in which a single 15 mg. tube can be placed in the cervix, 120 hours of radium with the tandem and a pair of ovoids will give between 5,000-5,100 gamma roentgens to point A. The addition of 4,000 roentgens to the midline (central axis dose) in four weeks delivers a dose to point A which approximates the recommended combined dose in the standard tandem and ovoid application.[5]

The uniform dose rate to point A with these attenuators as described above is theoretically an advantage. However, another more practical advantage of this system is that only 95 mg. of radium or 60% of the radium used in the conventional Fletcher loading is needed for any standard combination of ovoids and tandem. This is made up of 25 mg. for each ovoid and the maximum of a single 15 mg. tube and three 10 mg. tubes of radium for the extra long uterine tandem.

Since the ovoids can also be used in tandem or singly, all standard and most nonstandard applications for treatment of carcinoma of the uterine cervix can be obtained with the Fletcher applicators and their plastic jackets, the Mallory attenuators, four tandems of various lengths and 95 mg. of radium (Fig. 4).

Although the factor of less radium is not important in the large therapy centers, the use of the attenuators with the Fletcher ovoids makes it practical and possible for persons who have been trained with the Fletcher ovoids to use it in smaller hospitals and clinics. Another factor to be considered is that with the smaller amount of radium required in the treatment of cervical carcinoma, radium storage protection becomes a simpler problem.

FIG. 4



Complete set of appliances and radium required for all standard and satisfactory nonstandard radium applications. This includes the paired Fletcher ovoids and their plastic jackets, the attenuators, four different sizes of tandems and 95 mg. of radium.

Technic of Application

The technic of application, including individualization of the treatment depending on the patient and her disease have been described.[4,8,9] The size of the ovoids that will be needed is decided prior to therapy. However, if there is a question as to the size needed or in borderline cases, the larger size ovoid is loaded with a 25 mg. radium tube and the appropriate spacers or attenuators. The largest possible ovoids are used, and if they are too large or do not go high enough in the vagina, smaller ovoids are used. When using the attenuators it is only necessary to change the plastic jackets, or remove them as the case may be and put in the appropriate attenuator. The attenuators and extra jackets are kept in cold sterilizing solution for such a case. With this method no extra radium needs to be available, again decreasing the need for extra radium and the problem of protection of the operator and operating personnel.

Although we have not had time for prolonged observations using these attenuators and modifying the dose rate, no unusual reactions have been noted. The only real change introduced is an increase in the dose rate to the vaginal mucosa with the small ovoids. This is a consequence of increasing the effective radium present from 14 to 17 mg., with no corresponding increase in the distance between the sources and vaginal mucosa. If no more than 2 cm. separation of the centers is possible, there will be no room for the tandem. The ovoids and tandem are then used separately at weekly intervals. With four weeks or more treatment time the tolerance of the vaginal mucosa will not be exceeded with the small ovoids.[5]

Summary

1. Fletcher applicators are a satisfactory modification of the Manchester ovoids. With the recommended loadings they allow for an increase in the dose rate to the lateral pelvic wall without increasing the dose to point A.

2. With rigid Fletcher applicators it is possible to use metal attenuators of high density combined with a single radium capsule in various sized ovoids to arrive at a dosage system to deliver a precalculable dose to point A which varies only slightly with all the standard combinations of uterine tandems and ovoids. The dosage varies less than 4% using the attenuators described in standard applications.

3. With these particular attenuators, the amount of radium normally required in treatment of carcinoma of the uterine cervix with the Fletcher method may be reduced more than 40%, making it possible and practical for a person trained in this method to use Fletcher applicators with similar attenuators in smaller hospitals and clinics. With the reduced amount of radium, less storage protection is needed.

4. With the Fletcher applicators and their plastic jackets, these Mallory attenuators, the four sizes of tandems, and 95 mg. of radium, all standard and satisfactory nonstandard radium applications for the treatment of carcinoma of the uterine cervix can be obtained.

5. The dose delivered within the paracervical triangle using this method falls within the optimum dosage range when the standard times of the Manchester method are used with radium alone or with combined therapy.

Acknowledgment

We want to acknowledge the work of Mr. Leon L. Pellet of Dallas, Tex., in helping select the materials and doing the actual machining in the production of these attenuators.

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The Match Test and Its Significance

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The authors describe a simple test of pulmonary function. It is useful in detecting severe pulmonary emphysema. Also, from data studied, it seems unlikely that the patient who can perform this test will show respiratory acidosis.

THE PAST SEVERAL DECADES have witnessed an added interest in the physiologic approach to medical problems, resulting in the development of newer methods, modifications of older ones and their widespread clinical application. In the field of pulmonary function, measurements of the mechanics of breathing and of alveolar capillary gas exchange are notable examples.

Physiologic laboratories working at the clinical level are developing in most of the larger medical centers, and the practitioner of today finds himself considering problems involving flows, compliance, air flow resistance and other technical considerations which, just a few short years ago, were considered only in textbooks of physics. Of necessity, these measurements have become complex, technically difficult, time-consuming and, of course, expensive. This is not in any way to belittle the tremendous advance in the understanding of the mechanisms of disease and therapeutic avenues which have been opened by these methods. It is appreciated, however, that few physicians have suitable transducers, pneumotachographs and multichannel recorders instantly available and that, perhaps, a simple, crude readily available clinical test might be of some usefulness in the evaluation of the commonest complaint of cardiopulmonary insufficiency, namely, dyspnea. Such a test must be easily standardized, readily interpreted and require materials which are widely accessible. It must be simple for the patient to understand, and not too strenuous for even a debilitated patient to perform.

The search for a simple, useful measurement of cardiopulmonary reserve is certainly not new. For many years clinicians have attempted to correlate the length of time of breath holding with dyspnea and with the patient's response to therapy. However, as pointed out by Gaensler,[1] this test will frequently give erroneous results, and many patients with severe pulmonary disability may be among the longest breath holders. This report summarizes the authors' experience in assessing the value of a patient's ability to blow out a lighted match in a standardized manner as such a simple evaluation. Recently Snider and associates[2] have reported their experience with a similar technic.

Methods and Materials

One hundred forty-six patients with a wide variety of pulmonary and cardiac diseases and 12 geriatric patients referred to this laboratory for physiologic evaluation were asked, in addition to the common function measurements noted below, to perform the "match test." In a relatively draft free room with the patient seated comfortably, a well-burning "penny" wooden safety match was held approximately 10 cm. from the patient's mouth. The patient was asked to inspire maximally, and *with the mouth held widely opened* to extinguish the flame by exhaling as forcibly as possible (Fig. 1). The patient was watched carefully and, if the effort did not appear to be maximal, or, if the patient by closing the mouth or pursing the lips appeared to produce a small jet, the test was repeated until a valid and reproducible result was obtained.

Ventilatory function in all of these patients was assessed by determination of: (1) the maximum breathing capacity in triplicate, by the open circuit method using a high velocity-low resistance valve; and (2) the total vital capacity and 1, 2 and 3 second timed vital capacities by an electronically timed dial

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FIG. 1

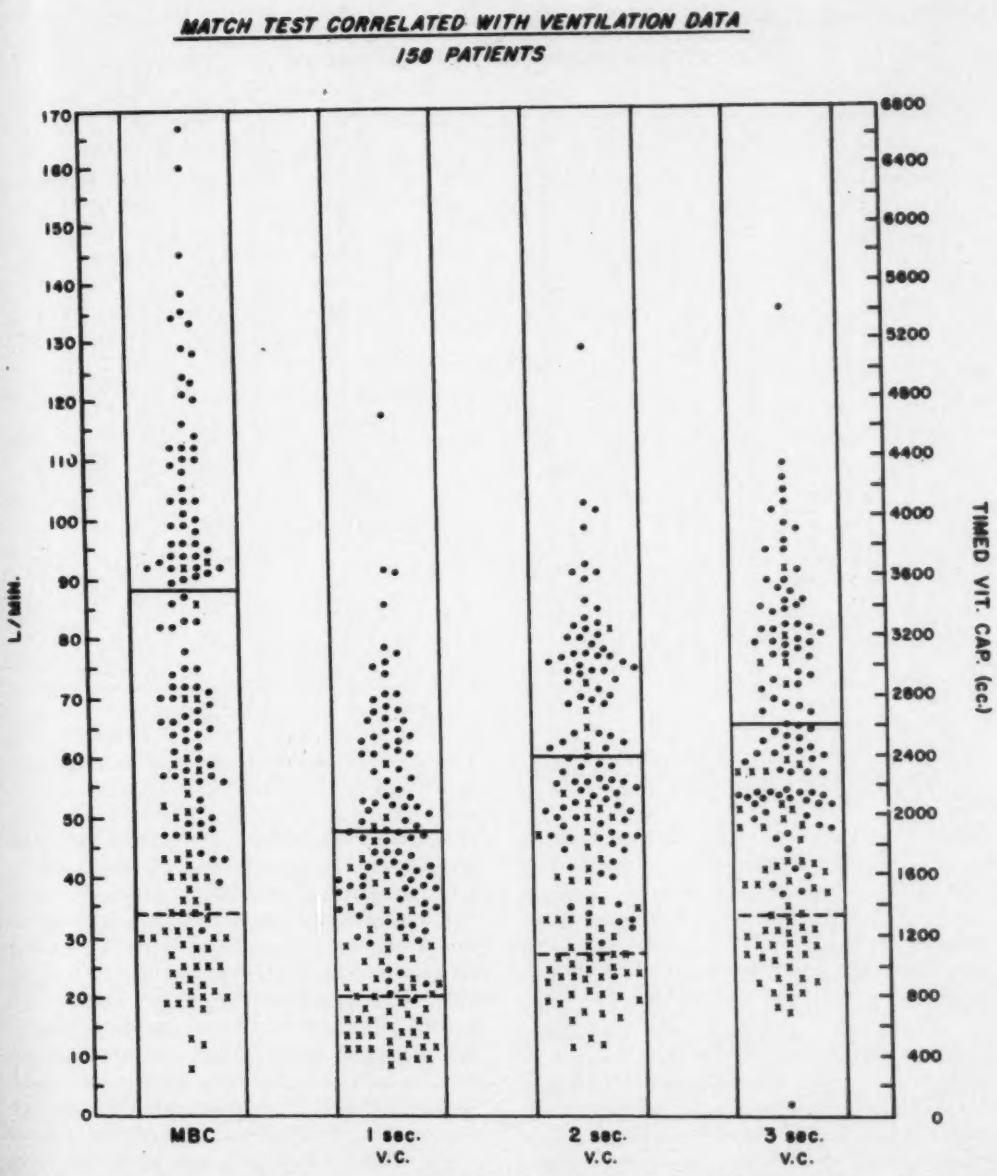
Demonstration of the "match test." The burning match is held approximately 10 cm. from the subject's mouth. The patient is instructed to inhale as deeply as possible and then to exhale forcibly with the mouth held widely open.

spirometer. All values given are expressed at BTPS. Predicted normal performances were calculated according to the regression equations of Baldwin.[3] Many of the subjects reported here had additional measurements of functional residual volume, intrapulmonary mixing index, spirographic determination of the subdivisions of vital capacity, minute volume, oxygen uptake and determination of arterial blood gases. The results of these additional studies will not be considered here.

Results

Of the total 158 subjects studied, 97 could extinguish the flame, 61 could not. It seemed obvious that, given a cooperative patient, the ability to blow out the match must be related to the volume of air which could be delivered rapidly and that a comparison of the results of the "match" test with the dynamic measurements of timed vital capacities and maximum breathing capacity might indicate a critical level of ventilatory performance. The results of this comparison are presented graphically in figure 2. It may be noted that the mean of the values of maximum breathing capacity for those patients who could blow out the flame was 88.5 L./Min. as compared to the value of 34 L./Min. for the group who could not perform this task. The difference between these means is highly significant ($P<.001$). The division of the two groups based on the 1, 2 and 3 second timed vital capacities is also illustrated and reveals a similarly significant separation of the mean values for these measurements. It was noted, however, that the range of spread of both those patients who could not, and especially those who could extinguish the match is quite large. An inspection of the clinical data explains the reason for the scatter of the latter group. Many of these were patients referred to the laboratory for preoperative evaluation, a routine measure on all staff thoracic surgical patients. Of the 96 patients who could successfully perform the test, 22 had a clinical diagnosis of carcinoma of the lung. In addition, 11 of the 12 geriatric normal persons fell into this group as did almost all of the patients with the so-called "alveolar capillary block" syndrome. It is also apparent from figure 2 that the patients who could not perform the match test successfully were characterized by low maximum breathing capacities and a reduced volume of air exhaled in 1, 2 and 3 seconds. These are functional impairments characteristic of obstructive disease of the airway and further inspection of the clinical data revealed that of the 61 patients who did not blow out the match, 52 had the clinical diagnosis of obstructive emphysema as compared to only 22 of the 96 patients who could "pass" the test. The ventilatory characteristics of this sub-group of 74 patients with chronic obstructive emphysema is shown in figure 3. The median value of the maximum breathing capacity of those who could extinguish the match was 58.0 L./Min. as compared to the median of 30.5 L./Min. for the group who could not. This difference is highly significant ($P<.001$). The median value of the 1, 2 and 3 second expiratory volumes for the patients who blew out the match was 1,376, 1,839 and 2,140 cc. respectively as compared to the respective medians of 748, 1,064, and 1,324 cc. for the group who did not. The difference between the median values of the two groups at each of the time intervals reported is also highly significant ($P<.001$). The median rather than the frequently reported mean is more appropriate with these data as these patients are selected (on the basis of low ventilatory performance) and thereby do not form a normal distribution curve which is a pre-

FIG. 2

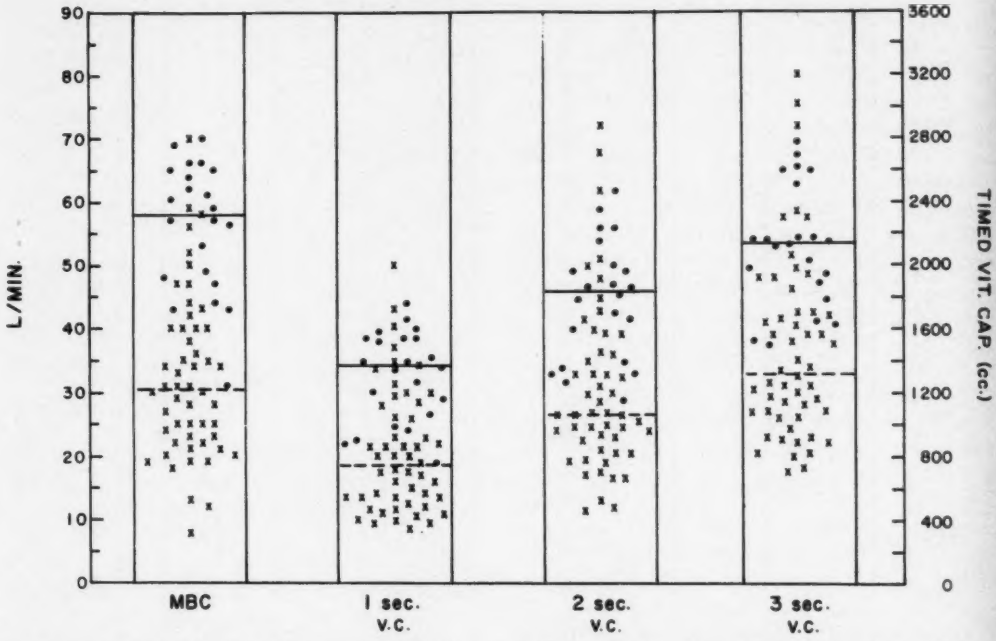


Each solid dot represents a patient who could blow out the match, each x a patient who failed the test. The solid line in each instance is the mean value of the group who could pass the test, and the broken line represents the mean of the test failure group.

requisite for statistical analysis involving mean values. Inspection of figure 3 also reveals that although some patients who could not extinguish the match had surprisingly good function, the ability to perform successfully this task seems to be of greater significance. None of the subjects of this group fell below the median of 30.5 L./Min. of the test failure group in the maximum breathing performance, and in only one patient of the 22

FIG. 3

MATCH TEST CORRELATED WITH VENTILATION DATA
74 PATIENTS WITH OBSTRUCTIVE EMPHYSEMA



The correlation of the ventilation data with the match test of the patients with obstructive emphysema. Each solid do represents a "test pass" patient, and each x represents a "test failure" patient. The solid line represents the median of the pass group, and the broken line represents the median of the failure group.

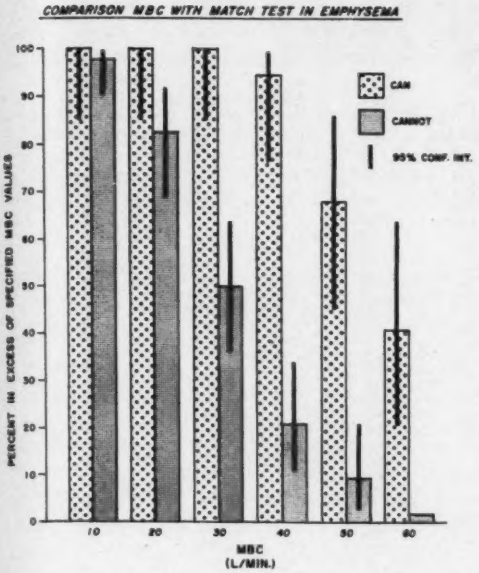
"dids" was the result of this test less than 41 L./Min. In view of the multiple determinations of the ventilatory function, it seems unlikely that this single instance represented erroneously low results of these tests, but rather an improper performance of the match test which escaped detection.

Discussion

Ideally, a test of any given activity should sharply divide the group of subjects at some specific level of performance without overlap. That is, there should be neither false negatives nor false positives. In figure 4, the data for maximum breathing capacity are arranged to indicate the performance level of the "pass" and "failure" groups. It may be noted that the sharpest break in the two groups for this measurement is at 40 L./Min. where 95% of individuals with at least this capability could extinguish the match, whereas the incidence of those patients who could not blow the match out but still had a capacity of 40 L./Min. is only 21 per cent. Figure 5 contains similarly arranged data for the one second timed vital capacity and indicates the greatest division of the two groups is at the 900 cc. level. It is evident from these illustrations that the division of the two groups based on the maximum breathing capacity is better than that obtained with the one second timed vital capacity. It may, therefore, be assumed that within the 95% confidence limits indicated, an individual who can extinguish the burning match in the manner described will have a maximum breathing capacity of 40 L./Min. or above.

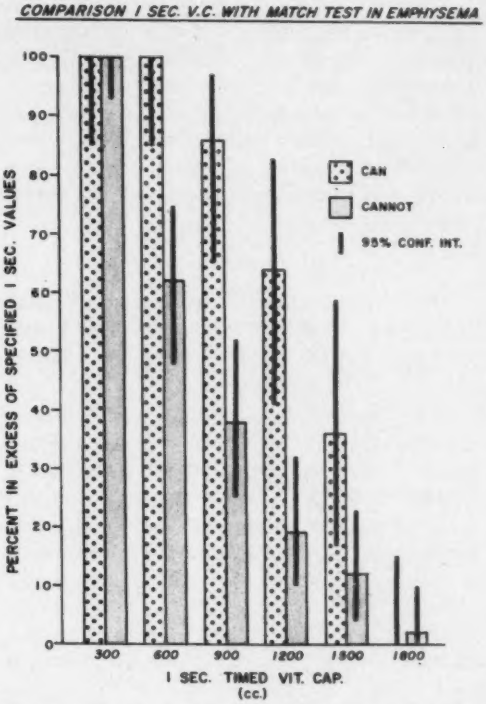
The absolute level of this value may be of considerable importance. Froeb, Leftwick and Motley[4] studied the effect of oxygen breathing on the development of respiratory acidosis (pH below 7.38) in 209 patients. Of the

FIG. 4



The data for maximum breathing capacity is arranged to indicate the level of performance as determined by the match test. The height of the columns designate the percentage of patients who could (coarsely stippled) and could not (finely stippled) extinguish the match for MBC values of 10-60 L./Min. The range of 95% confidence is indicated by the length of the vertical bar.

FIG. 5



The 1 second timed vital capacity data is arranged to indicate the level of performance as determined by the match test. The height of the columns represent the percentage of patients in each group for the performance values along the abscissa. The 95% confidence level is denoted by the length of the vertical bar.

18 patients who were observed to develop respiratory acidosis as defined, 17 had values of the maximum breathing capacity below 40% of predicted. Although the reported figures deal with maximum breathing capacity as per cent of the predicted performance rather than the actual value in liters/minute, it is possible from their data to calculate that the mean actual performance in this group for the maximum breathing capacity is 21 L./Min. It must also be noted that there were 59 patients whose maximum breathing capacities were below the 40% of predicted, but who did not develop respiratory acidosis while breathing oxygen. Stated differently, although respiratory acidosis was not an inevitable finding in patients with this degree of impairment, it would not be expected in patients whose maximum breathing capacities were in excess of 40 L./Min.

Although the usual cause of carbon dioxide retention in patients with chronic pulmonary disease is considered to be increased venous admixture by circulation of pulmonary arterial flow through alveoli which have reduced ventilation, recent information indicates that this is not entirely true. Studies of normal subjects with maximal ventilatory capacity artificially reduced by suitable means has indicated that at a similar range of impairment, the ability to prevent carbon dioxide retention may fail. Zechmann, Hall and Hull[5] noted that with an added external resistance of 0.43 cm.H_2O/L./sec./operating during inspiration and expiration, the maximum breathing capacity in normal subjects fell to values between 30 and 40 L./Min., and further that during exercise performed while breathing through this obstruction elevation of the alveolar carbon dioxide tension occurred. Recently Samet, Fierer and Bernstein,[6] measuring the ventilatory response to increasing concentrations of inspired carbon dioxide in normal individuals with various degrees of interposed obstruction, noted little decrease in alveolar ventilation with 5% carbon diox-

ide until the degree of obstruction was severe enough to reduce the maximum breathing capacity to below 40 L./Min. It would seem that it is indeed fortunate that this level of ventilatory capacity is very close to that demonstrated by the inability to blow out the match and suggests that this simple maneuver may allow detection of those patients with severe ventilatory insufficiency and carbon dioxide retention.

Summary

(1) A simple readily available, easily interpreted test of ventilatory function based on a patient's ability to extinguish a burning match is described.

(2) The results of this test in 158 patients is compared with the commonly used measurements of maximum breathing capacity and timed vital capacity.

(3) These results indicate that this procedure is useful in the detection of patients with severe emphysema, and evidence is presented to indicate that patients who can successfully perform this test would not be expected to show respiratory acidosis.

Acknowledgment

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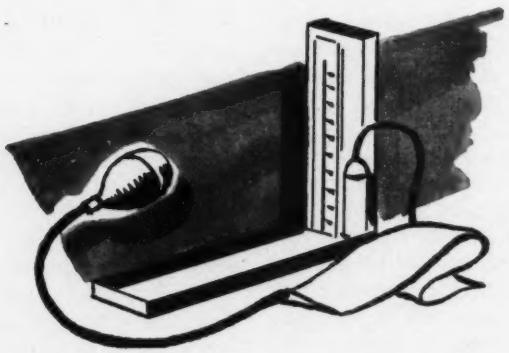

CASE REPORT

Reconstructive Surgery in the Treatment of Blastomycosis

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CLASSICALLY, North American cutaneous blastomycosis is characterized by a slowly progressive, ulcerative, granulomatous process which, untreated, may persist indefinitely, create great functional impairment, and inflict marked bodily disfigurement. Unfortunately the face, hands, and other exposed portions of skin are most frequently attacked. Facial involvement can be severe. The resulting deformities are of major cosmetic concern. They produce psychologic trauma, occupational disability, and economic distress. The reconstructive aspects of the cutaneous form of the disease are the concern of this paper. More particularly, it elaborates upon the use of free full thickness skin grafts in the restoration of the face ravished by blastomyces.

Gilchrist[1] first provided a clinical description of the cutaneous form of North American blastomycosis in 1894, at the June meeting of the American Dermatological Society held in Washington, D. C. A fungus was identified as the etiologic agent. Some four years later the causative organism was named *Blastomyces dermatitidis*. Like other pathogenic fungi it is diphasic. In tissue sections blastomyces is a round, usually budding yeast, some 8 to 20 microns in diameter. Smaller forms occur and filaments have been observed.[2]

On the face, *Blastomyces dermatitidis* spares no feature. The forehead, cheeks, nose, lips and eyelids may be involved. The conjunctiva, however, is usually immune. Initially, the lesion is papular in character; this enlarges, becomes pustular and ulcerates. A flat granular bleeding base ensues. Upon this a friable necrotic crust develops. Slowly the process extends peripherally with numerous miliary abscesses and a serpiginous fungating border. The ulcerated edge is elevated and sharply demarcated from the surrounding normal skin. The marginal growth is accompanied by central atrophy and cicatrization.

Histologically, blastomycosis is characterized by a pseudoepitheliomatous hyperplasia, edema, epidermal abscesses, tubercles, round cell infiltration, giant cells, and the budding fungi. Abscess formation is the most typical response, but chronic inflammation, necrosis and fibrosis may be prominent.

During the first half of this century, blastomycosis was treated with a multitude of therapeutic agents. Large doses of iodides, copper sulfate, arsenicals, antibiotics, vaccines and x-ray, to mention but a few, were all prescribed. Levitas and Baum,[3] however, declared that "of all the methods of treatment of localized blastomycosis, surgery is of most practical value."

The role of definitive surgery in the management of cutaneous blastomycosis has taken a variety of forms. Curettage, electrosurgical desiccation, incision and drainage, simple excision, and amputation have all been advocated. J. M. Stevenson demonstrated that total excision and immediate grafting of the defect is quite possible and expedient.[3] De Palma, Hardy, and Erickson[4] recently reported the "V" excision and primary closure of a lip lesion. Byars and Letterman,[5] in a discussion of the local and systemic effects of chronic ulcerations, have emphasized that "the only satisfactory final solution to the ulcer problem is the attainment of a well healed wound at the earliest possible moment." In localized cutaneous blastomycosis, surgical ex-

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cision of the entire lesion and resurfacing the defect with a split skin graft must always be considered. It is the treatment of choice for long standing refractory ulcers or for those of a more acute nature which do not readily respond to modern systemic antifungal therapy.

Reconstructive surgery and its potentialities in the care of the patient with blastomycosis have received scant mention in the literature. Blodi and Huffman's[6] case report is a rare exception. Perhaps this may be attributed to the chronic and recurrent nature of the disease. However, the discovery in this decade of the clinical usefulness of the aromatic diamidines makes it possible and mandatory that plastic surgical procedures be incorporated into the management of the blastomycotic victim. A case may best serve to depict the deforming and crippling effect of the blastomyces, to emphasize the effectiveness of modern systemic antifungal drugs as a surgical adjunct, and to illustrate the successful use of free full thickness skin grafts in the restoration of a facial feature.

Case Report

In the Spring of 1950, a 49 year old white farmer and forester nicked his face with a razor. Shortly thereafter several small "little seed wart-like" lesions developed on the right cheek. These slowly spread and became confluent. Numerous small pustules developed about the periphery. The patient obtained the care of various physicians. Ultraviolet light, radiation, the electric needle, acid, and a number of ointments were used without effect.

In 1951, a biopsy of the skin lesion was obtained and sent to Johns Hopkins Hospital. A diagnosis of cutaneous blastomycosis was made. Subsequently, a saturated solution of potassium iodide was prescribed. If the iodide was taken continuously, the effect wore off and the lesions became more pustular. If it was discontinued a week or two and then resumed, the lesions were held in check. In the Summer of 1952, the patient cut the second finger of his right hand. Here a lesion similar to the one on his face developed; it progressed to the other fingers and the dorsum of the hand. Meanwhile, the lesion on the right cheek spread. Ectropion of the eyelids followed. Constant conjunctival and corneal irritation made farming and forestry impossible.

On entry to the hospital on Feb. 4, 1954, the patient presented chronic granulomatous lesions of the right hand and face. The right cheek, supra-orbital regions, eyelids and the left upper neck were involved in the process. The granuloma was red and indurated. The raised peripheral edges contained numerous pustular areas. The eyelids were scarred and contracted (Fig. 1). Roentgenologic examinations on February 8 revealed no pathologic changes.

FIG. 1

Chronic granulomatous blastomycotic lesions and ectropion of eyelids prior to specific chemotherapy and surgical repair.

A biopsy was taken from the edge of the lesion on the dorsum of the hand. The pathologic microscopic report read as follows: "The epidermis becomes progressively broader above an area of dense dermal infiltration. Here the epidermal ridges are extremely tall, and anastomosing strands of epidermis surround cavities in the corium. Some of the deep portions of the epidermis are invaded by granulocytes. The intervening portions of corium are very heavily infiltrated by lymphocytes, plasma cells, and granulocytes forming abscesses with the structures of the tissue destroyed. In these areas occasional round fungi with a refractile capsule are seen. Some of these appear to be budding. A few syncytial masses with several elongated nuclei, apparently giant cells, are seen in the dermis. They are not seen to contain fungi." A diagnosis of blastomycosis of the skin was made. It was noted that the lesion appeared characteristic with the usual epithelial hyperplasia and acute reaction of the dermis.

Treatment with potassium iodide was first instituted. This kept the lesions in check but produced little improvement. On February 25, stilbamidine was first given as a slow intravenous drip. Daily injections continued until March 16. A total of 2.55 Gm. was administered. During the second week in March the lesions began to regress and completely disappeared in early April. At this date it was thought that time should be provided for the residual redness and in-

FIG. 2

Condition during second course of antifungal therapy for small recurrent lesion of right cheek and just prior to reparative surgery.

duration to resolve prior to undertaking any corrective surgery on the eyelid. Discharge was arranged.

On July 2, 1954, the patient was readmitted to the hospital. The upper and lower lids of both eyes were so contracted as to make corneal protection impossible. The skin of the face appeared remarkably improved; most of the discoloration had faded. Unfortunately, there was a small recurrent area on the right cheek (Fig. 2). A second course of stilbamidine was given from July 7 to July 20.

On July 20, under general anesthesia, a transverse incision was made paralleling the left lower lid margin. This incision was deepened and the scar contracture released allowing the lid to cover the eye completely. An elliptical defect 1.5 cm. in its greatest width was thus created. A similar dissection was carried out on the upper lid. The upper and lower denuded areas were then covered with full thickness grafts from the clavicular area. On Sept. 9, 1954, a similar corrective procedure was done on the right. In both instances the postoperative course was uneventful; the grafts took in their entirety.

Five years have now elapsed. There has been no recurrence of the original blastomycotic infection. The full thickness grafts are of good color and fine texture. The cosmetic improvement and functional result are satisfactory and gratifying. The patient is carrying on his former occupation without difficulty (Fig. 3).

FIG. 3

Five years following correction of bilateral contractures of upper and lower eyelids with free full thickness grafts.

In summary, it may be concluded that reconstructive surgery, with modern antifungal drugs as a potent adjunct, deserves a permanent place in the total care of the patient with North American cutaneous blastomycosis.

Acknowledgment

The authors wish to acknowledge the help of Dr. Isabella Harrison in the care of this patient, and the medical photography of Harry L. Busey, Veterans Administration Center, Martinsburg, W. Va.

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Recent Advances in Acute Leukemia in Children*

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There is much interest in the chemotherapy of leukemia, and a nationwide cooperative effort has been organized to apply new agents as they are developed. The author reviews the present state of chemotherapy.

FEW PHYSICIANS who have treated children with acute leukemia can fail to be impressed by the frequent, complete, and prolonged remissions that may be achieved with chemotherapy. Just as many can well appreciate the frustrations when, after varying periods of well-being, ultimate drug resistance and final relapse occurs. Largely because of this definite drug response in this disease, research has been intensified to uncover better methods of management and more effective chemical agents. This impetus has currently evolved into the development of the National Cancer Chemotherapy Program, sponsored by the Cancer Chemotherapy National Service Center of the National Cancer Institute. As a result most medical schools and most of the major medical centers throughout the United States are now joined in a variety of cooperative studies on cancer chemotherapy. Numerous protocols have already been outlined to evaluate various combinations of drugs and dosage regimens, and with the provision to incorporate new agents as they are provided.[1] Thousands of chemical agents are being screened annually, and as soon as basic pharmacologic and toxocologic studies can be completed, they will be given to clinical groups for trial in humans. It is the hope, as a result of this tremendous effort, that therapeutic control may be achieved even though the etiologic factors remain undiscovered.

Etiology

The status of the virus as a causative agent in leukemia has been a subject for debate for almost 50 years. Proponents of this theory believe the evidence is growing stronger, although proof is still lacking.[2] Cell-free filtrates have been demonstrated to retain their leukemogenic effect after passage through several mice, but no specific virus has been isolated.

The leukemogenic effect of irradiation has been shown by the reports of survivors of the Japanese atomic bomb and the reports of the British on x-ray therapy of ankylosing spondylitis.[3,4] In a recent report, Moloney[5] presents 6 cases of leukemia occurring in adults 18 months to 21 years after irradiation therapy. Murray and associates[6] have reviewed the relationship of ionizing radiation to the occurrence of acute leukemia in children in Monroe County, New York. The study shows a higher instance of acute leukemia after exposure to x-ray, but specifically after exposure to "deep" x-ray therapy in comparison to "superficial" x-ray. The affected children had been treated by x-ray for enlarged thymus, pertussis, and lymphoid hyperplasia. This is difficult information to compile or evaluate, and case numbers are small. More material must be accumulated before other definite conclusions can be made.

The possibility of other genetic or intrauterine predisposing factors has long been considered. Cramblett and collaborators[7] recently reported leukemia in an infant born of a mother with acute leukemia. This is the first report of such a case, although numerous other leukemic mothers have borne normal children. Numerous children with leukemia at birth, on the other hand, have had normal mothers.[8] Occasional multiple familial cases have been reported, and the disease has been

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seen in each of identical twins.[9] Other instances in which only one identical twin was affected have also been reported.[10]

Diagnosis

As a rule the disease is not difficult to suspect from the clinical features. In all instances a bone marrow examination should be made to establish the diagnosis. Making the diagnosis from a peripheral blood smear, particularly in the absence of a marked leukocytosis is extremely hazardous. The duration of this illness, prior to diagnosis, might appear to be of less importance than in most malignancies for it is a disseminated disease by its nature. However, if it is detected before the child is severely disabled, a remission may be obtained with an antimetabolite alone. Steroids, transfusions, and antibiotics may be withheld for a later stage.

Clinical Features

It is essential that the physician caring for these children have a clear understanding of the known pathophysiology of this disease. Infiltration, hemorrhage, or infection of any organ may result in interference with its normal physiologic function. Hence, the signs and symptoms relate to whatever area is specifically attacked. Anemia, thrombocytopenia, and neutropenia generally result due to the proliferation of blasts in the bone marrow. Large numbers of blasts entering the peripheral blood may produce leukocytosis; otherwise, there is usually a leukopenia. In either case, leukocytosis or leukopenia, a severe neutropenia occurs and increased susceptibility to infection results. A new clinical feature was recently reported by Fritz and associates[11] who demonstrated that when the white blood count rises to over 300,000, there is an increased possibility of fatal intracranial hemorrhage occurring shortly thereafter. Significantly, this is not dependent on severe concurrent thrombocytopenia, although such a "blastic crisis" is considered an ominous prognostic sign.

Thrombocytopenia is severe at the onset in most cases, but an occasional child will present with a normal platelet count. When the depression of platelets is marked, petechiae, ecchymoses, and bleeding from any of the body orifices may occur. Severe blood loss, combined with the basic failure of erythropoiesis in the bone marrow may produce severe anemia rapidly. Infiltration by leukemic cells in bones may produce severe pain, which in joint areas simulates acute arthritis. Since it is frequently transient it may mimic the migrating polyarthritis of rheumatic fever. Infiltration into the meninges may produce all of the features of a severe meningoencephalopathy with increased intracranial pressure, vomiting, headaches, nuchal rigidity, lethargy, coma, and death.[12]

The symptomatology is so protean that detailed complications can be listed *ad infinitum*. However, in spite of the severity of the disease in any child, very few complications are irreversible when response to therapy occurs.

Treatment

A detailed initial counseling session with *both* parents after the diagnosis is established is generally helpful not only to them, but assures smooth management of their child in the future. This should be the time to answer the anticipated questions and to outline the general management. On the Hematology Service at the Texas Children's Hospital in Houston, parents are frankly informed that the disease is fatal and told there is no known cure. They are told that the life span varies from a few weeks to several years, but there is no way to *predict* the duration, clinical course, or response to drugs in any child. They are also advised that therapy is now fairly well standardized up to the point of uncontrollable relapse, when investigational methods may be tried. Comment is made on obvious drug side effects, such as the increased appetite and weight gain with steroids, and the painful oral ulcerations with Methotrexate (4 - Amino - N - methyl pteroylglutamic acid), etc. This is useful in gaining the parent's confidence and in preventing unnecessary anxiety. It is also wise to point out that the drugs are often slow to take effect, and that a patient may get worse before this occurs. They are informed that frequent and careful follow-up examinations are necessary (Texas Children's Hospital Hematology Service maximal interval is 2 weeks), and that bone marrow examinations will be performed repeatedly. Many parents understandably become resistant to repeated "uncomfortable" procedures on their doomed child. If the need for repeated laboratory procedures is defined early,

it is a rare parent who ever questions this later. This is particularly important, since frequent bone marrow examinations are essential to ideal management, and are performed with increasing frequency.* The greatest amount of information as to the patients hematologic status at any given time can be obtained from a marrow specimen. The Southwest Cancer Chemotherapy Study Group protocol requires a bone marrow examination every 2 weeks with initial therapy, and thereafter every 4 weeks.

Others use bone marrow examinations as often as once every week or every 2 weeks. In this manner, basic changes in the disease process may be observed before they are reflected by alterations of the peripheral blood. Therapy may then be revised prior to clinical deterioration.

Obviously, the approach to families and patients will vary from one physician to another, but a fatal disease places a great emotional strain on families, and this aspect deserves as much attention as any other phase of therapy.

Chemotherapy

The adrenal steroids and the antimetabolites form the two major classifications for the standard agents used in the treatment of this disease. The adrenocortical hormones may actually be subdivided into the adrenocorticotropic hormone (ACTH), and adrenal corticosteroids (cortisone, prednisone, prednisolone, and hydrocortisone, etc.). ACTH is considered in a separate category since it has been observed occasionally to exert a definite effect even after resistance to the cortisone derivatives has developed.

The antimetabolites are grouped as folic acid antagonists and purine antagonists. Methotrexate (amethopterin) is the most commonly used folic acid antagonist, and Purinethol, (6-mercaptopurine) is the purine antagonist in standard use. Because of cross resistance, other folic acid antagonists have no value once resistance has developed to Methotrexate. This is also true of the purine antagonists after resistance has developed to 6-mercaptopurine. For practical purposes, therapy is limited to four standard medications (Table 1).

It is important to note that all of these drugs must be adjusted to the individual patient. By using them in sequential fashion, in addition to supportive therapy, the average survival has been increased from 4 months to 12 months during the past 12 years.[13-15]

Patients not seriously ill at the time of the initial diagnosis may frequently be started on an antimetabolite alone. However, for those children seriously ill, it is advisable to begin therapy with a steroid in addition to an antimetabolite. Steroid effect is fairly rapid (1-3 weeks), while antimetabolite effect may be delayed for 3 to 8 weeks. As soon as remission occurs, steroids are discontinued and the antimetabolite is continued as a maintenance therapy. When relapse occurs, if it can be detected before clinical deterioration occurs (via bone marrow study), the other antimetabolite may be substituted for the initial drug, and a second remission may be achieved without resorting to steroids. If the first relapse results in severe disability, steroids are utilized until the patient is controlled again. In this manner the antimetabolites constitute the backbone of the therapy and the steroids are used to tide the patient over more difficult situations.

Various modifications of this sequential therapy are in use. In some clinics, if steroids are used in the initial therapy, antimetabolites are withheld.[14] The steroids are administered until the patient achieves remission, and at that point therapy is discontinued. As soon as relapse occurs antimetabolite therapy is begun. Sequential therapy thereafter is much the same as in the manner described above. It is possible that this type of treatment may result in a slightly longer survival, and studies are in progress to evaluate this at the present time. As mentioned previously, the response to therapy cannot be predicted in advance. Therefore, each patient should be given a trial on each drug in order to achieve maximum therapeutic benefits.

*At Texas Children's Hospital, the posterior iliac spine is the preferred site. Over 600 bone marrow examinations have been performed on children of all ages without difficulty. Anterior tibial marrows are still performed on most children under 12 months of age because of the possibility of fecal contamination. Demerol, 1.5 mg./kg. and Nembutal, 4 mg./kg. are given intramuscularly one hour before the procedure. There are numerous advantages to this site:
1. It is a good source of marrow.
2. General anesthesia is unnecessary.
3. It is a safe area anatomically.
4. Children are easily immobilized in the prone position.
5. It appears to be a psychologically favorable position for the child.

TABLE 1

Agent	Dose Daily	Route	Average Dose for 15 kg. Child
I. Methotrexate	1.25 - 5.0 mg.	P.O.	2.5 mg. once daily
II. 6-mercaptopurine	2.5 mg./kg.	P.O.	37.5 mg. once daily
III. Adrenocorticosteroids	Depends on agent used		
Prednisone	2-3 mg./kg.	P.O.	10 mg. q. 6 hrs.
IV. ACTH (aqueous)	25-50 mg.	I.V.	40 mg. continuously/24 hrs.
(gel)	2-4 mg./kg.	I.M.	40 mg. once daily

Methotrexate is an effective folic acid antagonist, but also has antagonized many physicians because of its toxicity. It can be a severely toxic agent, but awareness of this and adjustment of the dosage to suit the child is generally all that is necessary to use it effectively. Since oral ulcerations are the classical early signs of toxicity, it is simple to have the mother observe for this. Many clinicians prescribe a daily glass of orange juice as an additional precaution. When the patient complains of burning from the orange juice, the drug is discontinued for 3 to 4 days, or until any ulcerations present heal. It is then resumed at a reduced dosage. Failure to interrupt therapy when toxicity occurs can result in severe gastrointestinal ulceration, diarrhea, and bone marrow depression.

6-mercaptopurine, on the other hand, is less toxic, but can produce severe bone marrow depression in the absence of other warning signs. Jaundice from this drug has been observed frequently, and hepatitis has recently been reported following prolonged treatment.[16] The side effects of steroids are well known, and provisions should be made to add supplementary potassium or restricted dieting, depending on the agents used.

A long list of chemical and antibiotic agents have been tried against acute leukemia in children. Among these are azaserine, 6-thioguanine, 6-chloropurine, 6-methomercaptopurine, 6-methyl-mercaptopurine, 8-azaguine, amini-nucleoside, chlorambucil, nitrogen mustard, thio-tepa, Aminopterin (4-Amino-pteroylglutamic acid), A-denopterin, actinomycin-D, and others.[13-15,17] Some of these have a definite therapeutic effect, but are either cross-resistant with Methotrexate or 6-mercaptopurine or are too toxic. Others have no demonstrable activity against acute leukemia. New agents are constantly under investigation.

Supportive Therapy

Hemotherapy obviously plays a vital role in the total care. Anemia may be corrected by use of whole blood in cases with acute hemorrhage, or packed red blood cells if the blood volume is undisturbed. The use of concentrated, transfusions of fresh platelets or fresh blood collected in plastic or siliconized equipment can be life-saving when bleeding is due to severe thrombocytopenia. Transfusions of platelets, however, should be limited to the more desperate situations, since repeated infusions may result in decreased effective hemostasis.

Infection may be a severe problem in any child. There is no question that antibiotics have contributed to the gradually increased survival time of children with acute leukemia. Ideally, identification of organisms should be attempted whenever possible so that proper antibiotic treatment may be instituted. Many times, however, it is not possible to localize the trouble, although broad spectrum antibiotic coverage results in prompt control of fever. Since many children in fulminant relapse remain afebrile, fever should always be interpreted as due to infection whenever present.[14] Fever has frequently been attributed "to the disease," and as a result, infections may be far advanced before they become clinically evident. Liberal nose, throat, stool, urine, and blood cultures are advisable. Varicella, occurring at any stage of the disease, may result in severe morbidity or fatality.

In general, surgical complications should be managed according to the usual surgical principles. Occasionally, agranulocytic abscesses are made worse by the hemorrhage that results from attempted drainage. Clinical judgment must be applied to each particular problem.

Local leukemic infiltrations into the skin, with ulceration, into the bones, with bone

pain, into regional lymph nodes, with massive adenopathy, into the liver, with massive hepatomegaly, into the meninges, with increased intracranial pressure, and numerous other areas may be treated quite effectively by the use of local irradiation in relatively small doses. For this reason it is important to be aware that these areas and numerous others may be involved with local infiltration and that this may occur even during hematologic remission.

Infiltration of the central nervous system and meninges has been seen with increasing frequency, perhaps due to the prolonged survival time as related to combined therapy. Systemic steroid therapy, x-ray therapy to the skull, or intrathecal Methotrexate may produce dramatic relief. Repeated courses of x-ray therapy to the skull may result in permanent alopecia, an undesirable side effect in some children, but one that may be avoided by using intrathecal Methotrexate. The dosage given by Murphy[14] is: either 0.25 mg. per kilogram every second or third day, or 0.5 mg. per kilogram every fourth or fifth day. The cerebral spinal fluid cell counts are followed, and an additional dose is given after the cell count is normal. Steroid therapy is usually reserved for patients in hematologically poor condition. X-ray therapy may be used at any time, and is preferred by many, in spite of the alopecia, because of its simplicity and rapid action.

Total Body Irradiation and Bone Marrow Transplantation

The use of total body irradiation and transplanted bone marrow tissue has been an exciting experimental approach to the treatment of this disease. Preliminary results have been somewhat discouraging, but it is possible that many of the obstacles now evident may be overcome in the near future. To date, autologous, isologous, and homologous bone marrow transplants have been used in a relatively small number of clinical situations.[18] Up to this time no successful result has been reported.

Circumstances permitting the use of isologous (identical twins) marrow are rare, but may aid in establishing technic.[19] Homologous (other individuals) marrow transplants are handicapped by the immunologic resistance of the host to foreign tissue or to possible latent donor-versus-host reactions. It has been suggested that this latent factor may be useful in the eradication of leukemic cells, since in many instances radio-resistance of the "tumor" may exceed the tolerance of the intestinal mucosa.[20] Total body irradiation may not be adequate, alone, to destroy the leukemic process. Autologous (patient's own) marrow may possibly be successfully transplanted, but it is not known that the disease can be completely eliminated. The bone marrow obtained during "complete remission" may still be involved with the leukemic process. At this time, this approach is no replacement for chemotherapy.

Summary

A review of the recent advances related to acute leukemia in children has been presented, and several aspects of management not commonly stressed have been discussed. A survey of current therapy emphasizes the importance of the new National Cancer Chemotherapy program. Chemical agents still comprise the basis for the therapy of all acute leukemias in children. The dramatic effect of these agents, even though limited in duration, should encourage an optimistic attitude for this vast new cooperative study program.

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Intussusception in Infants and Children

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Over the years improvement in early diagnosis has been accompanied by a progressive decrease in the mortality rate. The controversy still goes on relative to attempts at reduction of the intussusception before surgical intervention. The authors consider this question in an unbiased fashion.

Introduction

INTUSSUSCEPTION is as old, perhaps, as the human race, but its recognition as a clinical entity began in the 18th century. In the museum of the Royal College of Surgeons in London, England, there is a specimen of an intussusception prepared by John Hunter (1728-1793), surgeon to St. George Hospital and founder of the Hunterian Museum, London.

Intussusception is a mechanical intestinal obstruction in which the proximal loop or segment of the intestine (the intussusceptum) invaginates into the portion of the intestine immediately distal to it (the intussuscipiens). It is mechanical in the sense that the actual process taking place is physical and its nature is clearly understood. It is, perhaps, this simplicity which has prompted a search for a mechanical cause which exists for most cases of adult intussusception, but which is usually sought in vain when the same condition occurs in infants.

We have analyzed 159 cases of intussusception in infants and children occurring in Atlanta, Georgia, hospitals in the years 1929-1958 in the hope of contributing to the development of principles of etiology and treatment.

The Pattern of Incidence

Frequency. Oberhelman and Condon[1] found one intussusception in 1,490 admissions at Cook County (Chicago) Children's Hospital during the years 1925 to 1945, while Thurston, Holowach and McCoy[2] reported a frequency of 1:528 at St. Louis Children's Hospital from 1934 to 1951. Our experience more nearly agrees with that of Thurston, for 52 of our cases occurred among 24,671 admissions to the Henrietta Egleston Hospital for Children between 1932 and 1954. The frequency is 1:475.

Age. Our youngest patient was born prematurely, and her symptoms began on the first day of life. An equally young patient had been reported by Perrin and Lindsay.[3] The two oldest patients in this series were 11 years old. Sixty-one per cent were less than one year old, and 75.4% had not reached their second birthday. The highest incidence of the disease was in the 6th and 7th months of life. This is in agreement with most other series in this country and abroad. (See Table 1.)

Sex. There were 105 boys and 54 girls among our cases, giving a ratio of 1.94:1. Other series[1-4,7,19] totaling 2,820 cases have shown ratios ranging from 1.52:1[2] to 2.16:1.[1] No author has suggested an explanation for this sex difference. It is worth noting that of the 23 cases in which a mechanical cause could be found, all but 4 were in males.

Annual and Seasonal. Marked differences in the number of cases admitted from year to year have been noted by Close[4] and Kahle.[5] No pattern to this variation has yet become apparent. Our own data, while not complete by years, indicates a greater incidence (15 to 18 cases) during 1949-1950, with fewer cases (2 to 4) in 1946 and 1955.

With few exceptions all recent authors have

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TABLE 1

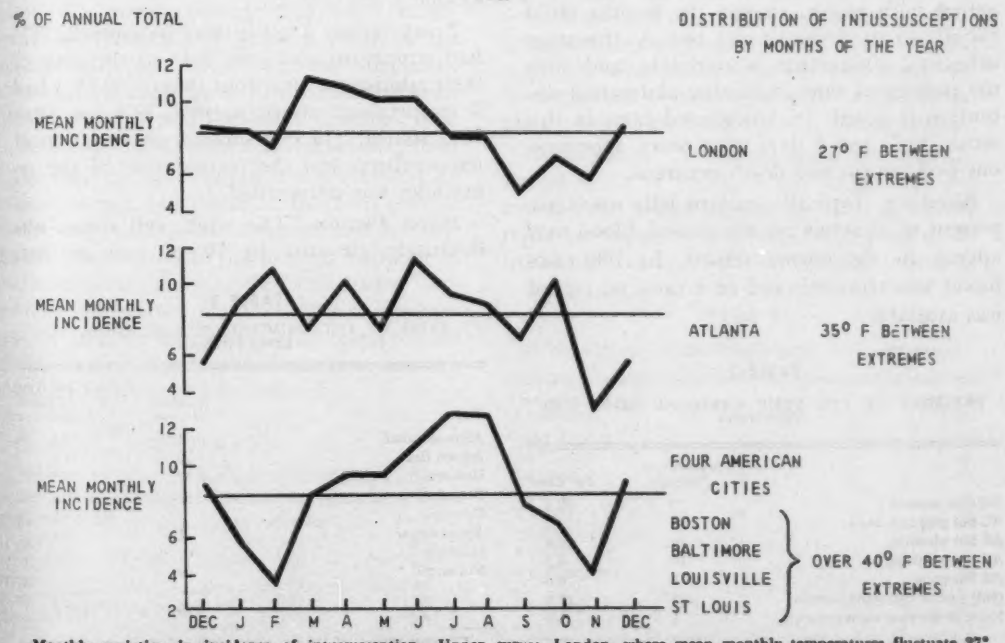
AGE AND SEX OF PATIENTS WITH INTUSSUSCEPTION

Age of Patients	*Male Number of Cases*	*Female Number of Cases*	*Total*
Months:			
1 Month or less	4	3	7
2	2	1	3
3	4	2	6
4	6	5	11
5	7	5	12
6	11	3	14
7	10	4	14
8	4	5	9
9	9	0	9
10	6	3	9
11	3	0	3
12	5	1	6
1 Year or less	71	32	103
Years:			
2	15	11	26
3	4	2	6
4	5	5	10
5	4	1	5
6	1	1	2
7	0	0	0
8	1	1	2
9	2	0	2
10	1	0	1
11	1	1	2
2-11 Years	34	22	56
Total all cases	105	54	159

been impressed with the seasonal fluctuations in the incidence of infantile intussusception. Although neither climate, holidays, nor the incidence of intestinal disturbances is clearly demonstrated in any one series, examination of the monthly admissions from seven cities has shown a consistent pattern (Fig. 1). Fluctuations are more extreme in cities with the greatest range between maximum and minimum mean monthly temperatures (St. Louis, 48°; Louisville, 43°; Baltimore, 43°; and Boston, 43°) than in cities with less marked extremes (Atlanta, 35°; and London, 27°).

The greatest number of cases occur in spring and summer, the peak being reached as early as March in Louisville[6] and as late as August in St. Louis.[2] Autumn produces a drop in the incidence of intussusception, with the fewest occurring about November in the United States, and in October in the London series. There is a small rise in the number of cases of intussusception in December, especially among the Boston cases.[7] A similar periodicity is found in the cases reported from Shanghai.[8] These variations are probably only indirectly related to climate.

FIG. 1



Monthly variation in incidence of intussusception. Upper curve: London, where mean monthly temperatures fluctuate 27° during the year. Middle curve: Atlanta, Ga., where temperature fluctuations average 35°. Lower curve: Four American cities having temperature fluctuations of more than 40°. Temperatures from the *World Almanac*.

Clinical Picture

The four cardinal signs and symptoms associated with intussusception are pain, vomiting, bleeding, and the presence of a tender abdominal mass. Their frequency is shown in table 2.

Pain. The onset of intussusception is sudden. The first and dominant symptom is a colicky abdominal pain, intermittent and paroxysmal in character. The child, who a few minutes before enjoyed playing, is now crying, pale and obviously suffering. Typically, he is restless, and seeks to find a more comfortable position by drawing both legs up to the abdomen. In the interim, between paroxysms, the child appears comfortable but listless. Pain was reported in 144 of our 159 cases; in 13 cases it was not mentioned, while in 2 cases pain was noted as absent.

Vomiting. The next stage of the disease is vomiting. Initially, stomach contents are produced, later, bile, and eventually small bowel contents, rarely with blood. Less constant than pain, vomiting was present in 133 of our cases and absent in 25. In one case it was not reported. Hematemesis occurred but twice.

Vomiting, sweating, and dehydration, together with pallor, change the healthy child rapidly to an obviously sick one. At this stage intestinal obstruction is complete, and with the passage of time increasing abdominal distention is noted. In 3 neglected cases in this series, 3, 7, and 8 days after onset, spontaneous perforation and death occurred.

Bleeding. Typically currant jelly stools are present or, if stools are not passed, blood may appear in the enema return. In 108 cases blood was reported, and in 8 cases no record was available.

TABLE 2

PRESENCE OF THE FOUR CARDINAL SIGNS AND SYMPTOMS

	Number of Patients	*Per Cent*
All four present	59	37.1
All but palpable mass	25	15.7
All but bleeding	20	12.6
All but vomiting	10	6.3
All but pain	1	0.6
Only one or two signs present	43	27.0
None of the four signs present	1	0.6
Total	159	99.9

TABLE 3

CONDITION OF ABDOMEN IN PATIENTS WITH INTUSSUSCEPTION

Physical Finding	*Number of Patients*	*Per Cent Having Sign*
Abdomen soft	48	30.2
Abdomen tender	15	9.4
Abdomen rigid	6	3.8
Abdomen distended	79	49.7
Mass present with distention	47	29.6
Mass present without distention	50	31.4
Mass doubtful	13	8.2
Abdomen negative	15	9.4

Abdominal Mass. The presence of a tender, palpable, sausage-shaped mass is pathognomonic of intussusception. In the present series it was reported in 60% of the cases. In 4 patients rectal examination demonstrated the mass which had not been externally palpable. Physical findings in the abdomen are listed in table 3.

Site of the Intussusception. Description of an intussusception is usually based upon the position of the junction (called the neck) of the entering segment (the intussusceptum) and the position of the advancing apex of the intussusceptum (called the head). Thus the terms ileocolic, jejuno-ileal, etc., are used (Table 4 and Fig. 2).

Temperature. Twenty-three patients (22.3%) had temperature of over 101° at the time of their admission. Sixty-four others (62.1%) had a temperature above normal, but less than 101. Sixteen (15.5%) showed no elevation of temperature, and the temperature of the remainder was unrecorded.

Blood Picture. The white cell count was definitely elevated in 70 of our patients

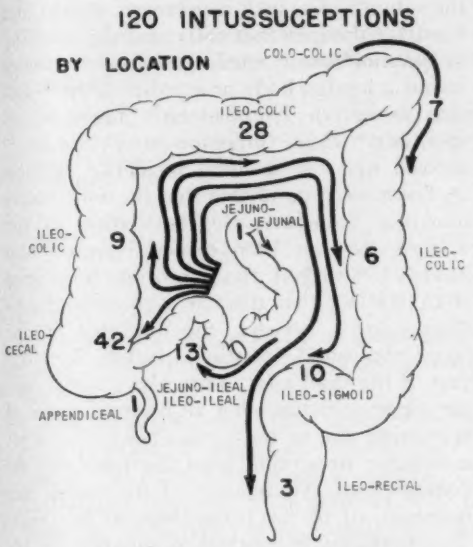
TABLE 4

TYPES OF INTUSSUSCEPTION ACCORDING TO LOCATION

Type	*Number of Cases*	*Per Cent of Cases Specified*
Jejunojejunal	1	0.8
Jejuno-ileal	2	1.6
Ileo-ileal	11	8.7
Ileocolic	104	82.5
Colocolic	7	5.5
Appendiceal	1	0.8
Multiple	(2)	(1.6)
Not stated	33*	
	159	100.0%

*Twenty-seven of these were reduced without operation, hence location was not accurately determined.

FIG. 2



Location of 120 intussusceptions. The head of the arrow indicates the position of the advancing head of the intussusceptum.

(55.6%). Despite this, 6 of these were afebrile. Table 5 shows the WBC. findings.

Radiologic Appearance. We agree with Gross[7] that roentgenologic studies are rarely necessary. History and physical findings are usually sufficient for an accurate diagnosis. Nevertheless, a definite correlation between clinical findings and radiologic findings, aids in reaching the diagnosis of intussusception.

Ileo-ileal intussusception is not revealed by barium enema, but the more frequent colonic conditions are readily demonstrated by this means. Obstruction to the barium, cupping of the head of the enema, the "coil spring" appearance of barium surrounding the intussusceptum and the frequent partial retrogression of the intussusceptum ahead of the enema are the chief features to be observed.

TABLE 5

BLOOD CELL PICTURE IN INTUSSUSCEPTION

White Cell Count	*Number*	*Per Cent*
Under 8,000	10	7.9
8,000-12,000	46	36.5
12,000-20,000	54	42.9
20,000-30,000	15	11.9
Over 30,000	1	0.8
Total reported	126	100.0%

Duration of Symptoms Prior to Admission. Omitting the 9 chronic or indeterminable cases, 47 of the remaining 150 patients, or 31.3%, were admitted 12 hours or less after the onset of the disease. This compares favorably with the 32.7% reported in Gross'[7] Boston series. The *median* case had lasted 24 hours. (We do not believe the average is a valid statistic to use in an incidence curve of this shape.) (See Table 6.)

One of our patients was seen within one hour, 2 within 2 hours, and 2 others within 3 hours of their onset. These demonstrate admirable alacrity on the part of parents and pediatricians. In one fatally delayed case, 9 days had elapsed. Five other patients were admitted only after one week.

Pathologic Findings

In intussusception, the first stage is characterized by edema of the entering portion of the intestine due to obstruction of lymph flow. This is followed by venous obstruction with more edema, then by infarction and gangrene. The third stage begins with necrosis of the arterial walls and ends with perforation and peritonitis. Rarely the intussusceptum sloughs while the intussuscipiens forms an anastomosis with the proximal intact portion, and spontaneous recovery takes place. In the relatively uncommon chronic condition, intussusception occurs repeatedly with incomplete obstruction and without strangulation.

Pathogenesis. A definite cause could be assigned in 23, or 14.5% of our cases. This is a considerably larger percentage than is usually reported. Gross[7] found only 6% of his series in which a cause could be assigned. Condon

TABLE 6

DURATION OF SYMPTOMS PRIOR TO ADMISSION

Time from Onset of Symptoms	*Boys*	*Girls*	*Total*
Under 6 hours	8	3	11
6-11 hours	15	9	24
12-24 hours	20	17	37
1-2 days	19	7	26
2-3 days	15	4	19
3-4 days	8	5	13
4-5 days	3	3	6
5 days or more	12	3	15
Totals	100	51	151*

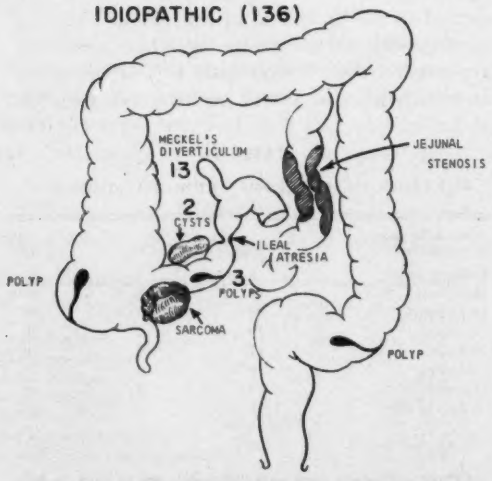
*Three additional cases were "chronic" and 5 were in hospital with other gastrointestinal complications.

and Oberhelman[9] found 8.6%, and Mayo and Woodruff[10] found 3.6 per cent. Oberhelman and Condon[1] reported 17.9% with a possible cause. Ravitch[11] observes that the 5% of his cases with demonstrable etiology were found in children older than the average. Thurston and associates[2] mention conditions in 28 of 116 cases which may have predisposed to intussusception. They are properly reticent as to the exact influence exerted in each case. Holowach, Thurston and McCoy[12] have discussed the relation between Meckel's diverticulum and intussusception. We found Meckel's diverticulum in 13 patients, intestinal polyps in 5, ileal duplications in 2, ileal atresia in 1, jejunal stenosis in 1, and sarcoma of the ileum and cecum in one. All of the Meckel's diverticula, and all but 4 of the other defects were found in male patients. Thus 18.1% of the intussusceptions in males, and but 7.4% of those in females, could be assigned to a definite cause (Fig. 3).

The striking feature is not that a cause could be assigned in 23 cases, but that a cause could *not* be assigned in 136 cases. Because of this common situation in cases of intussusception in children, a number of theories as to its cause have been advanced. None of the theories are completely satisfactory; some are much less so than others.

Nothnagel suggested in 1903 that intussusception was more common during shifts in the infant's diet, such as weaning. Perrin and Lindsay[3] thought that inflammatory swelling of lymphoid tissue acted upon the intestine as would a foreign body or a polyp. Avent[13] felt that mesenteric lymphadenitis might be responsible, while Thurston and associates[2] showed that the seasonal incidence of their St. Louis series paralleled that for non-specific diarrhea. Elsewhere, this association of the diseases has not been evident.[3] Anson and Maddock[14] suggest the condition may arise from the fact that there is a greater relative disproportion between the diameter of the large and small intestines during the first year of life than later. They also observe that the cecum sometimes has an unusual range of movement due to the persistence of the fetal mesenteric suspension from the posterior abdominal wall. Nonfixation of the cecum was noted in all of the cases observed by them. This condition is believed to enhance the occurrence of intussusception. Other theories have implicated local peristaltic reversal or malfunction of the myenteric autonomic plexus.

FIG. 3



Cause of intussusception in 23 cases, 14.5% of total cases. The remaining 136 cases had no evident anatomical causes.

Accuracy of Diagnosis

The importance of correct and early diagnosis cannot be overemphasized; the mortality rate of incorrectly diagnosed patients in our series was double that of correctly diagnosed patients.

The clinical diagnosis before operation (but following x-ray examination where it was used) was definitely correct in 113 of the 151 cases in which it was reported. Thus 74.8% of the cases were correctly diagnosed.

Forty diagnoses out of 48, or 83.4%, were correct when no x-ray studies were employed. When x-ray examination with barium enema was used, the clinical diagnosis was 74% correct, and when the x-ray was used without enema, the percentage of correct clinical diagnoses was only 51.8 per cent (Table 7). It must not be concluded that radiography is misleading, for it was employed only in the cases in which the diagnosis seemed doubtful from the history and physical findings alone.

The clinical diagnosis was correct in 91.1% of cases displaying all four of the classic signs (pain, vomiting, palpable mass, and blood in the stool). With the absence of one or more

TABLE 7

RELATION BETWEEN CLINICAL AND RADIOLOGIC DIAGNOSIS

Clinical Diagnosis	*X-Ray Report*					*Total*
	None	*Intussusception*	*Obstruction*	*Other*	*Negative*	
Intussusception—Yes	40	53	12	1	8	113
Intussusception—?	2	5	1	0	0	8
Intussusception—No	1	0	1	0	0	2
Obstruction	1	0	10	1	0	14
Other	4	4	3	2	2	17
Not given	2	6	0	0	0	8
Total	50	68	27	4	10	159

of these signs the accuracy of diagnosis declined. Some illustrative figures are given in table 8.

Absence of a palpable mass seems to lead to more incorrect diagnoses than the absence of any of the other three chief symptoms. The 26 patients suffering from diarrhea were incorrectly diagnosed more frequently than were the 36 constipated patients, although of those with diarrhea three-quarters had a palpable mass, whereas only half of the constipated ones had such a mass. Diarrhea tends to divert suspicion from intussusception.

The most difficult cases to recognize are those in which the intussusceptum remains entirely in the small intestine. Barium enemas will not visualize it, and an x-ray diagnosis of small intestinal obstruction is rarely made. In only 6 of our 13 cases (46.2%) of jejuno-ileal or ileo-ileal intussusception was the correct diagnosis made prior to operation.

Treatment

Eighty-three of our patients had been given a barium or common enema. Among this group 33, or 39.8%, of the intussusceptions were reduced. Six underwent subsequent operation. This percentage is close to the 42% reported from Australia by Nelson,[15] but less than the 62% of Hipsley[16] or the 90% claimed by Nordentoft and Hansen[17] in Denmark.

Reduction without operation took place spontaneously in 7 other patients not given an enema. None of the 40 patients in whom reduction took place without operation died.

Of the patients requiring operation after failure of the hydrostatic method, 4 (or 8.2%) of 49 died. Of the 62 operated upon without prior use of hydrostatic pressure 10 (16.2%) died. One patient who did not respond to the barium enema died without operation, and 7 patients died before either method could be employed. There is no evidence that the use of the hydrostatic pressure method, even where operation eventually proved necessary, resulted in fatal delay. The cases are summarized in table 9. In 2 patients perforation had

TABLE 8

DIAGNOSIS

Symptoms Present	*Per Cent of Correctly Diagnosed Cases*
All four cardinal symptoms	91.1
Only three symptoms	76.4
Bleeding and mass present	88.4
Abdomen negative, or only distended	51.0
Constipation present	71.9
Diarrhea present	65.4
Whole series	74.8

TABLE 9

TREATMENT

	Hydrostatic Pressure Reduction Attempted	*No Pressure Reduction Attempted*
Successful Reduction:		
Without operation:		
Spontaneous	—	7
Barium enema	31	—
Common enema	2	—
Subsequent operation*	(6)	—
With operation:		
Reduction only	38 (1 died)	43 (5 died)
Resection	11 (2 died)	19 (5 died)
Died Unreduced:		
No operation	1 (died)	7 (died)
Totals	83 (4 died)	76 (17 died)

*Subsequent operation:
2 exploratory
1 removal of polyp
2 removal of appendix
1 immediate recurrence

already taken place, or possibly resulted from use of the enema. In one, a sarcoma of the terminal ileum, cecum and appendix was found to have perforated. Two separate resections were performed and the patient lived. In the other case an enema was administered only on the second hospital day. Temperature was 105° and the white count 21,800; the barium treatment was not successful, and the patient died before operation. Perforation was discovered on autopsy and perhaps existed prior to treatment. In this case, reduction by hydrostatic pressure should have been attempted earlier, or it should not have been tried at all. This was the only nonsurgical fatality among patients so treated.

Thirty of the 111 patients operated upon required some resection. Of these, 7 or 23.3% died. Only 2 of the 46 admitted within 12 hours required resection, and one of these was not operated on until 50 hours had elapsed. Four of the 30 resections (13.3%) were performed on patients admitted within 24 hours of onset, and the remaining 24 were done on patients whose disease had lasted more than 24 hours. Seventeen of these were performed on patients whose symptoms had lasted at least 48 hours. These 17 resections represented 32.1% of all patients whose symptoms had lasted 2 days or more. Root, Christensen and Peterson[18] reported that 25% of the patients in their study required resection after 48 hours.

Recurrence and Sequelae

In 4 cases operation was necessary because of recurring intussusception. In one case reduced with barium enema, the intussusception recurred the next day and surgical reduction was performed. In another case repeated sigmorectal intussusception was only halted by resection. The third of these cases had a congenital blind ileum which was repaired. Intussusception requiring resection of lower ileum took place at the age of two weeks. A continual series of gastrointestinal crises culminated in death at age four. The fourth case required surgical removal of a sigmoid polyp causing repeated transient intussusception.

In 3 cases there was a history of previous spontaneously reducing intussusceptions. All were between one and two years of age and did not undergo operation. Another similar patient underwent surgical reduction at five and one-half months of age. A second intussusception at 14 months was reduced hydrostatically.

In 3 cases surgical intervention resulted in adhesions producing intestinal obstruction a few months later. One patient whose reduced intussusception extended from the ileocecal valve to the sigmoid colon, died from an obstruction 5 months after the operation. In addition, we have seen an intussusception recur due to hypertrophy of the ileocecal valve. The patient required a subsequent operation 3 days after the initial surgical reduction.

With incomplete follow-up it is not possible to assign a definite frequency to recurrence in our series. Gross[7] estimates it at 2 per cent.

Mortality

Five of our patients died without treatment, being *in extremis* upon admission. All were between 4 and 7 months of age. One, who lived only one hour after admission, had been stricken 36 hours previously; 3 others had a history of 3 days, and one of 5 days since the onset of the intussusception. Two more were considered poor operative risks and eventually died without operation. One died after 2 weeks of treatment for infectious diarrhea. Thus, 8 patients died essentially untreated.

Fourteen other patients died postoperatively. One patient died 5 months later of adhesions resulting from his operation; another, not included in our mortality tables, died 4 years later from chronic gastrointestinal difficulties.

If we discount the 5 cases *in extremis* (as have other writers) we have a death rate of 10.7% for males and 9.8% for females, or 10.1% total. This mortality represents the effectiveness of treatment once the disease is recognized and the patient admitted. Of the whole number, 12.4% of the boys and 14.8% of the girls afflicted actually died; the combined mortality is 13.2 per cent.

Surgical mortality is greatest in the first 24 hours. Nine of our 14 postoperative deaths occurred in this period. Shock, dehydration and the toxicity of gangrenous bowel all unite to depress vitality.

Without doubt there are three chief factors

affecting mortality. The death rate is greater in: (1) the younger the patient; (2) the longer the condition has persisted; and (3) the farther the intussusceptum has traveled, or the greater its length. Although more boys than girls are affected, their mortality rates are essentially the same. Table 10 shows the effect of each of these factors.

From the distribution of our cases, we believe these three factors are independent of one another. There was no greater delay in younger than in older patients. Among those brought in within 12 hours, the intussusceptions were not shorter than among those brought in later. Thurston and associates[2] have likewise reported no correlation between duration of symptoms and progressive advancement of the intussusception.

The only slight indication of correlation in our cases was between the length of the intussusception and age of the patient. Of the longer intussusceptions, 79% occurred in patients one year old or less, yet patients of this age constitute only 65% of our series. Although 30 of our patients were over 2 years of age, none had an ileocolic intussusception long enough to pass beyond the transverse colon.

All but 2 of the 21 children dying had distended abdomens on admission. This is a late manifestation of the disease. Fewer than 40% of those surviving presented this sign. By the time gangrene of the intussusception has occurred the prognosis becomes poorer. Twenty patients had gangrenous intestines and 9 (45%) died.

An admission temperature of over 101° is a grave sign. Twelve of 23 patients with high temperatures succumbed. Slight elevation did not increase mortality.

Decline in Mortality. In almost all series reported there has been a gratifying decline in the mortality rate from intussusception. In some hospitals the mortality dropped from as high as 50 to 60% before 1930 to effectively zero by 1950.[7,9] Our own experience is shown in table 11. Except for this decline, there is little constancy in figures from various parts of the country. Mortality was about 25% during 1923-27 in Boston,[7] during 1930-39 in our series, and during 1939-49 in New Orleans.[10] Decrease in the time elapsing between onset and treatment had undoubtedly been the chief factor in increasing survival. To a large extent this is due to a better recognition of the seriousness of the condition on the part of pediatricians and parents. On the other hand,

TABLE 10

EFFECT OF VARIOUS FACTORS UPON MORTALITY

Age and Mortality: *Age*	*Number of Cases*	*Number Died*	*Per Cent Mortality*
0- 6 mos.	53	11	20.7
7-12 mos.	50	8	16.0
13-18 mos.	12	1	8.3
19-24 mos.	14	1	7.2
Over 24 mos.	30	0	0.0
	159	21	13.2
Duration of Symptoms and Mortality: *Duration of Symptoms*			
Under 1 day	72	2	2.8
1-3 das.	45	8	17.8
3-5 das.	19	4	21.0
Over 5 das.	15	7	46.6
Not specified	8	0	0.0
	159	21	13.2
Length of Intussusception and Mortality (Ileocolic Cases Only): *Length*			
Ileum to cecum only	42	2	4.8
Ileum to ascending or transverse colon	37	5	13.5
Ileum to descending or sigmoid colon	19	7	36.8
	98	14	14.3

TABLE 11

MORTALITY BY YEARS

Years	*Incidence*	*Total Died*	*Mortality Per Cent*	*Died After Treatment*	*"Surgical Mortality"*
1930-39	28	7	25.0	7	25.0
1940-49	42	6	14.3	5	12.2
1950-58	88	8	9.1	4	5.0
Totals	159*	21	13.2	16	10.1

*Total includes 1 case from 1929.

treatment after admission requires equally decisive recognition on the part of the surgeon. Improvement in preoperative preparation and postoperative care of the patient have also played a part in the decline in mortality.

Discussion

Since the latter part of the last century when Hutchinson first successfully operated upon an infant with intussusception and Hirschsprung first systematically treated the disease with hydrostatic pressure there has been a controversy with respect to treatment. Friesen[20] has succinctly outlined the present state of the question.

Reduction by Hydrostatic Pressure. The chief improvement in the enema method recommended by Hipprocates is in the use of barium and fluoroscopy. We can now watch what we are doing. Ravitch and his associates[11] have long been trying to convince the medical profession that this is the treatment of choice. They have presented statistical data and clinical evidence that "the surgeon's task is to reverse the mechanical process." The method has gained wide acceptance in Australia[15,16] and in the Scandinavian countries.[17]

If all patients could be treated early enough, there would be little question of the merit of reduction in this manner. If gangrene has already set in, however, the intussusception may be: (1) irreducible and the necessary operation delayed; (2) reducible but not viable, the surgeon lulled into complacency by the apparent success of the procedure; and (3) sufficiently necrotic to give way to the applied pressure, and to result in catastrophic rupture. In addition to these objections, it has been noted that where an exciting agent, such as a polyp, exists it will remain undetected, and will produce a more or less immediate recurrence of the intussusception.

Surgical Reduction. Some surgeons are strongly opposed to colonic inflation and insist that laparotomy is the only sure method of treatment. Should resection be necessary, no time has been wasted, and no risk of perforation exists as it might through prior use of ineffective methods. Against this argument is the fact that laparotomy is never absolutely safe, and even where surgical reduction has been accomplished there remains the possibility of subsequent obstruction from postoperative adhesions.

It is regrettable that so much dogmatism has existed with respect to the methods of treating intussusception. An intelligent combination of the two procedures, with recognition that laparotomy can often be safely avoided, is recommended. Following nonoperative treatment the child should be hospitalized and closely observed for an arbitrary period of 48 hours. Should the intussusception recur after hydrostatic reduction, further attempts to avoid surgical intervention should be abandoned. In one case in our series reduction by enema was followed by recurrence the next day.

An initial attempt should be made to reduce the intussusception under the fluoroscope. This will confirm the diagnosis and, in many cases, cure the patient. The only objection, that of possible rupture of gangrenous bowel, can be avoided by gentleness and the use of no more than three to three and one-half feet of hydrostatic pressure.

With respect to operative technic, we believe that the incision should be made in the right lower quadrant and not over the presenting lesion. A routine appendectomy is advocated. Fixation of the cecum, or suture of the terminal ileum to the ascending colon in an effort to avoid recurrence is not usually practical, due to local edema of the bowel wall and the rarity of recurrence following surgical reduction. In only one of our cases has there been a postoperative recurrence.

Summary and Conclusions

1. One hundred fifty-nine cases of intussusception in infants and children occurring in Atlanta, Georgia, between 1929 and 1958 are analyzed.

2. The experience of a number of cities, including Atlanta, has been analyzed and a correlation between climate and intussusception has been suggested.

3. An analysis of the accuracy of diagnosis in terms of the presenting signs and symptoms is undertaken. The four cardinal signs of pain, vomiting, bleeding and abdominal mass produce 90% of correct diagnoses. The absence of a palpable abdominal mass is the chief cause of mistaken or delayed diagnosis.

4. Three factors result in an increased mortality: the youth of the patient, the duration of the condition, and the length of intestine involved. Each of these factors acts upon mortality as an independent variable.

5. Mortality in Atlanta, as in other cities, has declined markedly in the last 20 years. Most of this decline can be attributed to earlier diagnosis and treatment.

6. It is suggested that the old controversy between hydrostatic and surgical reduction need not be resolved in favor of either. A suggested procedure permits the patient to have the advantage of both methods.

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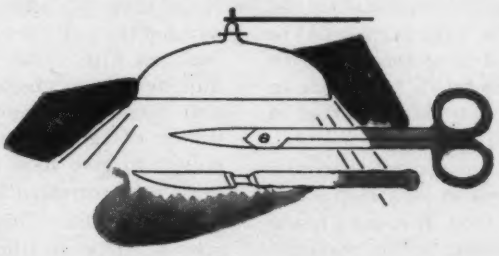

Individualizing the Excretory Urogram*

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THE PRIMARY PURPOSE of this paper is to emphasize the value of "individualizing the excretory urogram." This is done routinely by the radiologist in barium studies of the gastrointestinal tract as the study is in progress. We believe similar attention to the intravenous urogram while it is in progress can be equally rewarding.

You are very familiar with the numerous excellent contrast media which are available, and the technical details involved in intravenous urography are well known.

There is a tendency to let the intravenous urogram become a "routine" procedure when, with a little more interest and some extra effort, considerably more diagnostic examination can be obtained by varying the routine study.

The routine intravenous urogram varies somewhat from department to department but will usually include a preliminary film or films, followed by a series of films after injection of the contrast media and may include a film in the upright position after voiding. This is all well and good and usually provides the diagnostic information desired. However, all of us have been asked to see a set of intravenous urograms in which another view, a film repeated, or a film in another position would have been of value in making a more accurate diagnosis.

To individualize the intravenous urogram it is necessary for someone to view each set of films as they are being done. It is usually impractical for the radiologist or the urologist to do this personally. Our solution to this problem is to select one technician to do the intravenous urogram. He cannot be expected to interpret the films but he can be trained to recognize that something unusual is present and bring it to the attention of the radiologist and the procedure can then be varied as indicated.

Individualizing the intravenous urogram starts with the plain film. It should be viewed before injection of contrast media, and such simple errors as improper position, unsatisfactory development or technic, and poor preparation can be detected. The films after injection are viewed as they are processed. This enables one to get oblique views, "delayed films," films in the right position, or other special views if indicated.

Oblique views can add a lot of information in such diseases as malrotation, tumor, calculus, and extrinsic displacements of the upper urinary tract. In the lower urinary tract it may localize diverticula of the bladder.

It is well known that in partial obstructions to the ureter "delayed films" even as long as 24 to 48 hours following the injection of contrast media will sometimes show a complete pyeloureterogram down to the point of obstruction. A "delayed film" in this instance enables us to make a diagnosis without the danger of catheterizing the obstructed ureter. If the ureteral obstruction is low, it is necessary for the patient to void before taking the "delayed film," since a bladder full of contrast media can obscure the point of obstruction. Sometimes there is insufficient concentration of contrast media in the obstructing kidney to give good quality films. This can usually be corrected by a second injection of contrast media. This quite frequently will give a "delayed film" of satisfactory diagnostic quality.

In cases of suspected perinephritic abscess, a double exposure of a film, on deep inspiration and on expiration, may show fixation of the kidney on the affected side and be an added factor in making a diagnosis.

The intravenous urogram in children always presents a problem because of motion;

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it is discouraging to review a set with motion having made every film useless. Subsequent films at the time can correct this relatively common error.

It sometimes becomes necessary to do an intravenous urogram during pregnancy. It is possible to cut down on the number of exposures by viewing each film and thus reduce the amount of radiation to the fetus.

These variations represent but a few of the opportunities which are possible in individualizing the intravenous urogram. You will be limited only by your own interest and ingenuity.

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Benign Primary Pulmonary Histoplasmosis: A Common Cause of Unexplained Fever in Children

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This brief review of cases serves to attract the family doctor's attention to a common cause of fever or "atypical" pneumonia in children, especially in our area.

HISTOPLASMOSIS was first described as a disease by Darling[1] in 1906, and the agent was identified as a fungus by DeMonbreun[2] in 1934. The disease was considered invariably fatal until 1946, when Christie and Peterson[3] and Palmer[4] related histoplasmin sensitivity and lung calcifications in the north central part of the United States. Further studies proved this relationship, and since this time many variations of the disease have been described.

Historically, the form first described is the disseminated type which usually is seen in very young or very old patients, but may occur at any age. There is usually hepatosplenomegaly and septic-type temperature with deterioration and death. Associated with the disease is an anemia and a leukopenia, though at times a leukocytosis has been described. The bone marrow may reveal *Histoplasma capsulatum* on smear, but invariably reveals granulomas in this disseminated form of the disease. This finding, though not diagnostic, should make one strongly suspect histoplasmosis in a patient from our geographic area. The mortality rate in this type of disease is quite high unless treated.[5]

In the great majortiy of instances, only a positive skin test confirms the patient's contact with *Histoplasma capsulatum* but the symptomatic pulmonary form occurs quite commonly. This primary infection usually causes a febrile course with or without significant organomegaly. Furcolow[6] and Christie[7] have presented excellent descriptions and classification of the many variants. The following cases serve to illustrate the variable clinical picture most often seen in our area.

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Case Reports

Case 1. A. M. C., an 8 year old white boy, was referred to the hospital for "unexplained fever." History revealed that this patient had been perfectly well until about 3 weeks previously when he had developed a low-grade fever, which had risen on occasion to 101°F. Shortly after the development of fever, the patient was found to have significant bilateral cervical adenopathy and then some generalized adenopathy involving the axillary, epitrochlear and inguinal nodes. The possibility of infectious mononucleosis was considered, but as the patient did not seem to improve and the heterophil antibody test was negative, he was referred into the hospital for further investigation. Physical examination on admission revealed the moderate generalized adenopathy. The nodes were neither painful nor tender but were quite firm. The spleen was palpated about 2 cm. below the left costal margin.

Laboratory examination revealed a Hgb. of 12.6 Gm. and a white blood count of 12,300, with 70% neutrophils, 2% stabs, 3% eosinophils, 22% lymphocytes, and 3% monocytes. The bone marrow examination was not remarkable. A chest x-ray film was considered normal.

Despite the temperature, which rose to as much as 101° F., the patient felt well and had a good appetite. The histoplasmin skin test was positive as was the complement-fixation test, at significant levels with both antigen I and II. Follow-up observation of this boy revealed that his temperature fell to normal and remained normal after approximately one month. His spleen was no longer palpated, and at present he is doing well 6 months after observation.

Case 2. J. T. M., an 8 year old white boy, was referred to the hospital because of fever and pneumonia. This patient had apparently been well until 4 weeks previously when he first developed low-grade fever and general malaise. His physical examination was, otherwise, not remarkable. Approximately 10 days before hospitalization, the patient's chest film was noted to show some "congestion of the left lung." He was treated with several antibiotics but the low-grade

fever continued, as well as the infiltration of the lung. He was referred for hospital admission.

Physical examination revealed a well-developed and well-nourished boy in no acute distress. The general physical examination was essentially negative except for a soft basal systolic murmur which was louder with the patient recumbent. The spleen was palpated 2 cm. below the left costal margin. The chest examination was not remarkable. On the day of admission, the child's temperature was found to be 103°F.

Laboratory studies revealed a Hgb. of 10 Gm., white blood count of 4,100 with 32% neutrophils, 5% stabs, 3% basophils, 1% eosinophils, 54% lymphocytes, and 5% monocytes. The tuberculin skin test (5 T. U. of PPD.) was negative. The chest x-ray film revealed increased hilar adenopathy, as well as a right paratracheal node. In addition, there was some infiltrate in the left lower lung field. Bone marrow examination was not remarkable. The precipitin-in-agar-gel test of Heiner[8] was positive for active histoplasmosis. The complement-fixation test at this time was negative to both antigen I and II, with a rise in complement-fixation in 3 weeks to 1:16 in antigen I and 1:64 in antigen II.

Approximately 6 weeks later, the child's temperature was consistently normal. He was generally asymptomatic but a follow-up chest film still showed some infiltration in the left lower lung fields. This had cleared 3 months later and the patient has been afebrile and asymptomatic since that time.

Case 3. W. C. S.,[9] a 2¾ year old white boy, was referred to the hospital because of the sudden occurrence of lesions on the legs typical of erythema nodosum. One week before admission he had developed an intermittent low-grade fever and had become anorexic. The mother then gave the child tetracycline. No improvement occurred and he was taken to his physician who prescribed an antihelmintic. Two days later the eruption developed. The drugs were discontinued and the child hospitalized. Physical examination was not remarkable except for the bilateral erythema of the anterior lower limbs.

Routine skin tests revealed a strongly positive histoplasmin and a negative tuberculin (5 T. U. of PPD.).

FIG. 1

CLINICAL COURSE OF PATIENT C. C.

Day		1	2	3	4	5	6	7	8	35	120
Temperature	100+ 99+ 98+ 97+	‡	‡	‡	‡	‡	‡	‡	‡	•	•
Splenomegaly		++	++	+±	+	+	+	+	±	0	0
Hepatomegaly		++	++	++	+±	+	+	±	±	0	0
Sputa Culture		Neg.	Neg.	Neg.							
Bone Marrow		Normal									
Chest X-ray		*						*			*
Serum	Prec. in agar gel						Pos.			Pos.	
	C.F. Ant. 1 Ant. 2									1:16 1:24	

*See Figure 2

FIG. 2, A

On admission.

The white blood count was 8,600 with a normal differential picture. The patient's serum was tested by Heiner[8] and reported indicative of active histoplasmosis. The chest film revealed a patchy infiltrate in the right chest. No therapy was given and the skin and pulmonary lesions regressed in one week.

Case 4. C. S. C., (Fig. 1) a 6 year old white boy, was referred to the hospital because of persistent fever and a bilateral pulmonary infiltrate. This present illness began approximately 3 weeks before admission with fever and malaise. One week later, a chest x-ray study revealed diffuse bilateral pulmonary infiltrates (Fig. 2,A). As there was no improvement the child was referred to the hospital for admission. On physical examination, the spleen was palpated about 3 cm. below the left costal margin and the liver about 1 cm. below the right costal margin. The chest examination was not remarkable. The child did not appear acutely ill.

The laboratory studies revealed a Hgb. of 12.4 Gm., a white blood count of 5,750 with 45% neutrophils,

FIG. 2, B

One week later.

FIG. 2, C

At 4 months.

5% stabs, 1% eosinophils, and 49% lymphocytes. Skin test to tuberculin was negative and to histoplasmin strongly positive. The bone marrow was not remarkable. The gastric washings were negative on both smear and culture for acid-fast organism, as were three examinations of the sputa. Serum tested for precipitin-in-agar-gel by Heiner[8] was positive.

No treatment was given. The patient was afebrile during his hospitalization and was dismissed after approximately 5 days. One week later the radiograph of the chest revealed only mild improvement (Fig. 2,B); in one month there was marked resolution, and it was completely clear in 4 months (Fig. 2,C). Complement-fixation tests were also markedly positive. On follow-up study 4 months later, this patient was asymptomatic and doing well.

Discussion

These cases serve to illustrate the variability seen in this geographic area of the benign primary pulmonary form of histoplasmosis. Since studies have revealed that approximately 60% of teen-age children in Kentucky have cutaneous reactivity to histoplasmin, it should be readily apparent that a large amount of infection must exist. The marked variability of the clinical picture could account for the paucity of identifiable minor cases. Clinically, this is one of the more important causes of fever of undetermined origin referred to the Department of Pediatrics at the University of Louisville. The recognition of this fact by practicing physicians will emphasize the desirability of doing routine histoplasmin skin tests along with tuberculin tests. Certainly in this geographic area, a lung lesion plus a positive skin test to histoplasmin should mean as much diagnostically as a positive tuberculin in the same situation. In the former, we are more fortunate in that specific serologic tests are available[8] to confirm our suspicion.

Summary

1. The benign primary pulmonary forms of histoplasmosis occurring commonly in children are described.

2. Illustrative cases are presented.

3. Benign pulmonary histoplasmosis should be considered in any case of "unexplained fever," or atypical pneumonia, especially in regions where *Histoplasma capsulatum* infection is endemic.

Note: The routine skin test for tuberculin in this clinic is 5 T. U. of PPD. and for histoplasmin, 1:1,000 dilution Parke-Davis & Company histoplasmin.

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Tendon Lengthening for Volkmann's Ischemic Clawhand*

JACOB KULOWSKI, M.D., *Saint Joseph, Mo.*

The Volkmann's clawhand is an unfortunate deformity with much disability. The case reports illustrate what can be done in reconstructive surgery.

VOLKMANN DISTINGUISHED between paralytic and ischemic contracture, and described the latter clawhand deformity which bears his name in the latter half of the 19th century. He took a dark view of the prognosis, stating that "most severe cases affecting the fingers and hand are absolutely without treatment. . . . The less severe cases will be cured" (by manipulation under anesthesia). The clinician's difficulty, today, has several aspects. For one thing it is not easy to differentiate between paralytic and ischemic elements. For another he has to evaluate the degree of participation (if present) of the intrinsic muscles, in addition to the primary involvement of the extrinsic muscles and tendons. Furthermore there are differences of opinion regarding treatment. Finally, he must choose among approximately eight types of technical procedures which have been described in the medical literature since Volkmann's time. All of these operations are essentially those of muscle slackening, with the exception of excision of necrotic muscle bellies, joint fusion (wrist), and booster tendon transplantations.

Tendon lengthening by the Z-method, as advocated by me, is also a muscle slackening technic. Variations recommended by others include stripping or sliding of affected muscular origins in the upper parts of the forearm; and, bone shortening—i.e., carpectomy, phalangectomy and resection of parts of the radius and ulna. It is my thesis that tendon lengthening, adequately done, will give satis-

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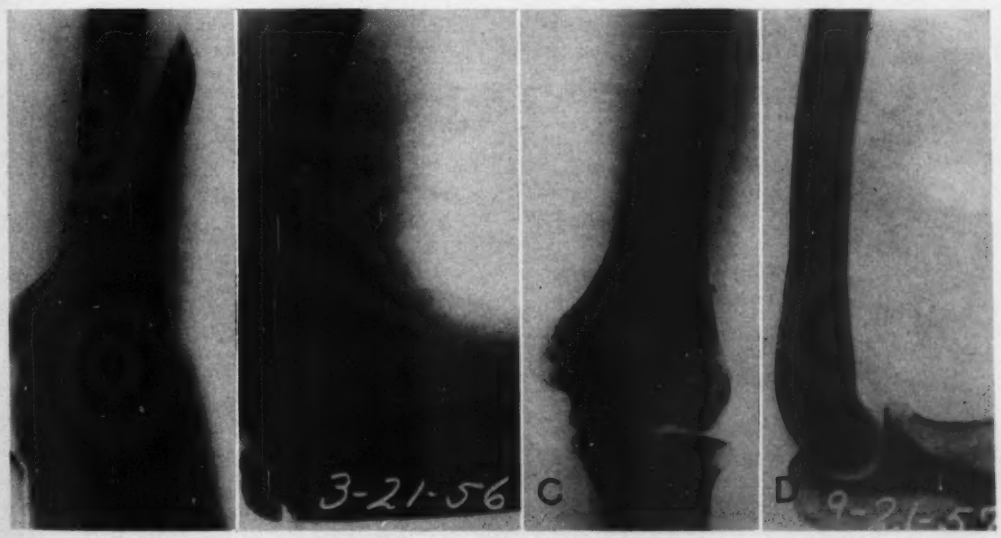
FIG. 1



(Case 1) Left, preoperative condition of elbow; right, healed fracture after internal fixation, same case.

FIG. 2

Classic clawhand deformity (ischemic) (Case 1), just prior to operation under general anesthesia. All of the extrinsic flexors of the thumb, fingers, hand and wrist were involved.

factory results in all instances in which the extrinsic flexor (long) muscles and tendons of the fingers, hand and wrist are the chief causes of the contracture deformity. It is my purpose to illustrate this point with three case reports and comments based upon them and my general experience with similar cases and related conditions over the past 30 years.

Case Reports

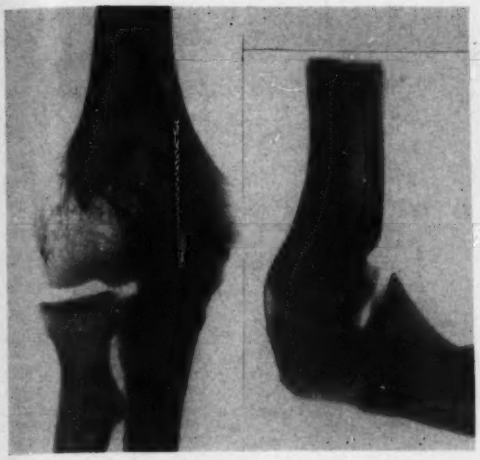
Case 1. A boy aged 14 years (1956). Figure 1 shows x-ray films before and after open reduction and internal fixation of an oblique supracondylar fracture of the humerus received in a scuffle with another boy. This operation followed 3 days after an attempt, with failure, of manipulative reduction. Figure 2 shows the classic clawhand some 4 weeks afterward, when the postoperative cast had been removed. Splinting and physiotherapy failed to improve the condition. Lengthening of all extrinsic flexors of the fingers, hand and wrist was done. Figure 3 shows the result 2 years later. At operation the densest adhesions were present at the upper and middle third of the forearm, especially between the sublimus and profundus tendons. The whole enveloping (vaginal) fascia on the flexor side of the forearm was remarkably thickened and contracted also.

Case 2. Boy aged 9 years (1947). He was seen 8 weeks after manipulative reduction and immobilization in a cast with a supracondylar fracture of the humerus. There was a typical clawhand with an established myositis ossificans and contracture of the elbow (calcified mass filled the antecubital space). Preliminary re-educational therapy failed to improve the condition after 2 months. Operation was done at the elbow and forearm. The elbow was approached anteriorly through a Z-skin incision. A Z-type lengthening was done of the biceps and brachialis anticus tendons, which allowed removal of the calcified mass and excision of the anterior capsule of the joint. A fair correction of the contracture was obtained. Next, all of the flexor tendons (extrinsic) were lengthened by the Z-method.

FIG. 3

(Case 1) Condition of elbow, wrist, hand and digits, 2 years after operation.

FIG. 4



(Case 2) The affected elbow, 10 years after operation.

A mild infection at the elbow was controlled by drainage and wet packing 4 days afterward. Figure 4 shows the x-ray appearance of the elbow 10 years later. Figure 5 shows the clinical condition of the elbow and hand 12 years after operation.

Case 3. Boy aged 8 years (1938). He was seen 3 months after manipulative treatment for supracondylar fracture of the humerus. Three months of preliminary therapy to improve the clawhand failed. Operation consisted of lengthening all of the extrinsic flexors in the forearm. A fair result was obtained. Three years afterward he presented a cubitus varus and some residual weakness of the flexors of the thumb and fingers. At this time a supracondylar wedge osteotomy was done in conjunction with booster transplantation of the flexor carpi radialis to the long flexor of the thumb and flexor carpi ulnaris to long flexors of fingers. Figure 6 shows the condition of the elbow and figure 7 that of the hand and wrist some 20 years later.

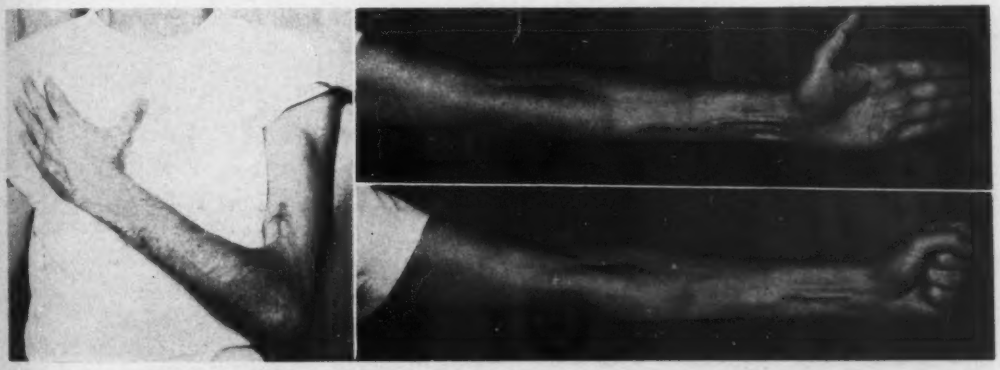
FIG. 6

(Case 3) Condition of elbow 20 years after injury and 10 years after corrective wedge osteotomy.

Comments

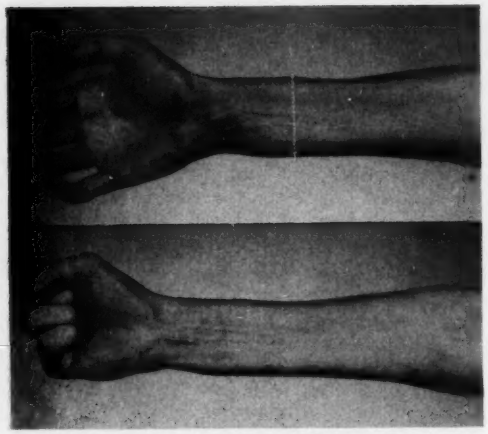
Case 1 has a special lesson for us. First of all, accurate reduction and internal fixation is *no guarantee* that ischemic contracture will not develop afterward. Second, the surgeon must be certain that *ischemia is not already impending before he undertakes operation.* Third, after open reduction, any external fixative device should reach only to the wrist and leave the hand and wrist free, else the

FIG. 5



(Case 2) Condition of elbow, wrist, hand and digits 12 years after operative treatment.

FIG. 7



(Case 3) Condition of hand and digits 20 years after tendon lengthening and 10 years after booster tendon transplantations.

early tendency toward deformity will be masked (as indeed it was in this patient, the deformity being apparent at once when the cast was removed). Impending and actual deformity may be missed when the hand and wrist are in the usual cockup position in plaster.

Case 2 suggests that associated lesions should also be cared for either in a one stage or two stage operation. In this case both elbow and forearm were done at the same time.

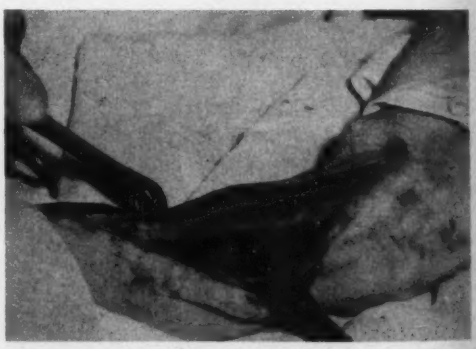
Case 3 also stresses this point and illustrates the value of booster tendon transplantations, *even after the selected tendons had already been lengthened on a previous occasion.*

Aim of operative treatment. The aim of operative treatment is to replace the hand in the normal position of function, and to re-establish, insofar as possible, a return to a dynamically balanced muscular equilibrium between flexors and extensors of the extrinsic or long muscles and tendons of the forearm which control these movements in the fingers, hand and wrist. The flexor component of the clawhand represents one kind of pathologic balance between flexors and extensors. When hyperextension exists at the metacarpophalangeal joints there is another kind of pathologic balance due to the passive tension exerted upon these joints by the extensors. In this case participation of intrinsic muscles must be considered; also participation of the peripheral nerves (and rarely, the extensors themselves).

How does simple lengthening of the extrinsic flexors, then, yield such satisfactory results in the face of these complicating possibilities and the seemingly incontrovertible fact that this type of muscle slackening procedure merely replaces an overtight tenodesis by one of more suitable length? The answer, though somewhat speculative, is rooted in the biomechanical and physiologic aspects of the situation. In the first place, tendon lengthening does replace the hand and fingers in an optimum position for function. The rest is up to the most thorough representation in the brain which exists for the hand (and other elements of the upper extremity) and upon which rests its enormous capability for re-education after some sort of equilibrium has been achieved.* Moreover, tendon lengthening is by all odds a conservative operation, and there is no part of the body in which conservative surgery has greater part than in the digits. Moreover, the extrinsic tendons are amenable to lengthening and carry out the primitive but essential flexor movements of the wrist, hand and digits. Finally, along with careful technic and adequate postoperative care, all adherent structures in the forearm are separated and examined (Figs. 8 and 9).

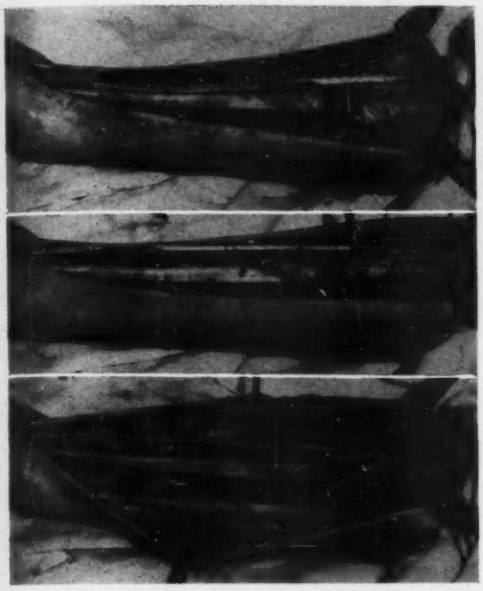
*According to Wood Jones it is not the hand that is perfect, but the whole nervous mechanism by which movements of the hand are evoked, coordinated, and controlled. Most to be admired in the multitude of actions possible in the human hand, is the wonderful development of the cerebral cortex and its perfection, not the bones, muscles, and joints that carry out the complex volitions.

FIG. 8



(Case 1) Operative photograph showing inadequate primary incision, also the contracted deep fascia.

FIG. 9



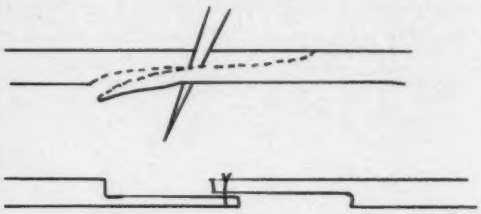
(Case 1) Operative pictures (from above downward) showing the progressive stages of separation of intertendinous and intermuscular adhesions; freeing of the ulnar and medial nerves (and vessels as possible); and, final isolation of affected flexor extrinsic muscles and tendons throughout full length of the forearm, now ready for tendon lengthening.

In other words, it is necessary to consider the established clawhand deformity on the background of all of the dangers attending precursors or potentiating factors which govern its development; namely, the supracondylar fracture in children, and the combination of events afterwards which may involve muscle, nerve, tendon and blood vessels. The underlying factor is ischemia which, if not reversed, is followed inevitably by secondary or merging neurovascular, fascial, and bone and joint complications.*

Operative Technic. Surgical complications are to be avoided by careful attention to details and proper selection of cases. All of the extrinsic flexors are slit in half according to the Z-principle and the ends stitched with a single fine silk knot (Fig. 10). Sometimes it may be necessary to cut the sublimus and

*I have seen but one case of actual massive necrosis of a muscle belly due to multiple fractures from the elbow downward, received in a high energy automobile accident. All of the flexors sloughed out.

FIG. 10



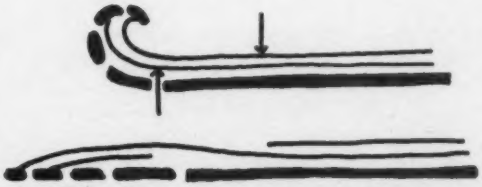
Drawing showing technic of Z-method of tendon lengthening.

profundus tendons eccentrically, and then join the distal stumps of the profundus to the proximal ends of the sublimus (Fig. 11). In any case the wrist and fingers should be quite fully extended afterward (Fig. 12).

Conclusions

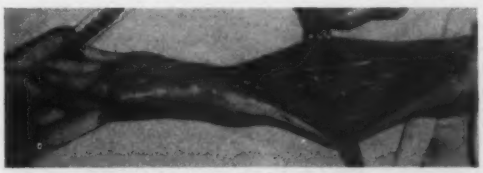
It is important to recognize Volkmann's clawhand to be a combination of elastic physiologic *contraction* and pathologic inelastic fibrous *contracture* affecting chiefly the extrinsic flexor muscles of the fingers, hand and wrist. This condition will respond to properly done tendon lengthenings of the affected structures on the flexor side. Furthermore, this operation should be done as soon as the lesion has become established and no longer responds to nonoperative measures.

FIG. 11



Drawing showing alternate method of lengthening by exchange between sublimus and profundus and their end to suture.

FIG. 12



Operative picture (Case 1) showing extension of the wrist, thumb, and digits following tendon lengthening (and the frustrating appearance of the forearm afterward, despite which satisfactory results do come around).

Unnecessary procrastination in this regard tends to increase fibrosis, inhibit nerve and vascular recovery and function, and enhances further atrophy of disuse in areas not primarily involved, such as the intrinsic muscles and the extrinsic extensors.

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The Lymphoid Tissue of the Nasopharynx: Factors Responsible for Certain Histopathologic Alterations. A Preliminary Study*

A. R. HOLLENDER, M.D., and JEROME BENSON, M.D.,† *Miami Beach, Fla.*

Because more needs to be known concerning the pathogenesis of the histologic changes developing in lymphoid tissue, the authors are engaged in a study of lymphoid tissue removed at operation.

THE NASOPHARYNX is a trap-like area deeply recessed postnasally in the skull. Because it is not readily accessible, the nasopharynx often is completely overlooked in routine physical examinations. As a consequence significant pathologic processes frequently remain unrecognized.

The nasopharynx contains lymphadenoid tissue over which passes the inspired air constantly contaminated with foreign substances and noxious agents. Pathologic alterations which develop in this lymphadenoid tissue probably can be accounted for by these and other local and systemic stimuli.

Most of the lymphoid tissue in the upper respiratory tract is of the lympho-epithelial type having only efferent lymphatics. "The mucous surface is covered by epithelium of a peculiar type, having no basement membrane, with the result that the two types of cell merge in the boundary zone."[1]

Apart from this, according to Robb-Smith,[1] the morphology of the lymphoid portions is in no way different cytologically or anatomically from lymph nodes, being divisible into follicles, sinus and medulla, with a variety of cell types of variable potencies.

The Lymphoid Organ

Clark[2] described the group of nodular structures closely associated with the lymph vascular system as lymphoid organs. According to him it includes, in addition to the lymph nodes which are particularly related to the lymphatic vessels, a number of organs that are largely made up of lymphoid tissue, namely the spleen, thymus, palatine, pharyngeal and lingual tonsils, solitary and aggregated follicles, and (in part) bone marrow. Clark[2] held that in their simplest form, the lymphoid organs consist of mere irregular accumulations or patches of lymphoid cells, which have been termed lymphoid infiltrations.

Although these patches are more commonly found within mucous membranes along the intestinal tract and the air passages in the lungs, they are scattered in different parts of the body. Because of the structural similarity of these widely strewn patches (tissue masses), and also because often they exert their effects in unison, the total aggregation logically can be regarded as a single functioning organ.

If this assumption is plausible, it justifies the suggestion of Robb-Smith[1] to divide the disorders of the lymphoid tissue of any region of the body into two categories: (a) those initiated by local conditions limited to that region; and (b) those in which there is a generalized abnormality of the lymphoid tissue throughout the body, and, therefore, the lymphoid tissue of the special region undergoes a similar process.

The Pharyngeal Tonsil—Quantitative Aspects

The pharyngeal tonsil of the child usually is larger than that of the adult. Normally, regression begins at or before the age of puberty, but often for unexplained causes postnasal lymphoid masses are found in adults, even in the later periods of life.[3]

Atrophy, hypertrophy and hyperplasia of

*Read before the Section on Ophthalmology and Otolaryngology, Southern Medical Association, Fifty-Third Annual Meeting, Atlanta, Ga., November 16-19, 1959.

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the pharyngeal tonsil are produced by stimuli of different types. At times, however, local tissue changes reflect the presence of a generalized disorder of the body's lymphoid tissues.[1]

The growth or amount of lymphoid tissue primarily is a quantitative problem, which, in some instances, is governed by factors like caloric intake and starvation. The latter leads to reduction in size of lymphoid mass, while a high caloric intake results in an increase in tissue mass above normal.[4]

Growth of lymphoid tissue is influenced also by the protein content of the diet. Proof of this is afforded by restricting the intake of proteins or essential protein constituents. If an increase in total serum protein takes place, it is related essentially to an increase in the globulin fraction. Lymphoid tissue has a high requirement for pyridoxine. Involution of this tissue has been observed in animals on a pyridoxine deficient diet.[5,6]

The secretion of adrenocortical hormones, controlled by the adrenotropic hormone, is the normal mechanism regulating lymphoid tissue mass. Briefly, the pituitary-adrenal axis influences the size and development of lymphoid tissue. Although the size of the tonsillar structures is reduced with cortisone and ACTH, the effect is reversed on discontinuance of the hormones.[7]

The local reactive processes, or stimuli, which influence the pharyngeal tonsil quantitatively and qualitatively include inflammation, infection (bacterial and viral), allergy, or their combinations. Clinically, interest is centered routinely on the size of the pharyngeal tonsil. Unless the cause is obvious, for example, allergy, the lymphoid enlargement cannot always be explained.

From a quantitative point of view, one must also account for involution of lymphoid tissue. Acute involution has resulted from various stimuli: exposure to excessive heat or cold, burns, surgical operations, altered physiologic conditions as pregnancy or lactation, and the administration of a wide range of toxic agents. The mechanism of acute involution is thought to result from the release of pituitary adrenocorticotropic hormone and subsequent stimulation of the adrenal cortex.[8] Acute involution of lymphoid tissue does not occur in adrenalectomized animals subjected to stress.

Another quantitative problem concerning lymphoid tissue is suggested by its regeneration after the surgical removal of the lymphoid organs. If a lymphoid organ is completely extirpated, regeneration usually does not take place in the same area, but fresh lymphoid tissue develops in other organs, as in the liver and the lungs.[9] Regeneration of lymphoid tissue may also follow hormonal damage or ionizing radiation.[9] Although the effects of these factors are of more than academic concern, they are not directly related to the present study.

Lymphoid Tissue—Qualitative Aspects

Standard texts on pathology contain only meager accounts of the qualitative aspects of lymphadenoid tissue. Although its histologic picture exhibits a more or less fixed pattern, it is practically impossible to determine what typifies a "normal" pattern. Surgically removed adenoid tissue almost invariably has been altered by stimuli and, therefore, cannot be assumed to be normal. The degree or extent of the tissue alterations varies with the intensity and duration of the inciting forces and the effects of past reactions.

It has been pointed out that there are several morphologic variations in the normal lymph node. In the rat, Gilman and associates[10] have described nine histologic patterns in lymph nodes removed from healthy animals, but in man, according to Marshall,[9] the full range of variation has not been adequately charted. Though it is uncertain whether the changes that occur in man are similar to those in animals, the patterns observed "are of value in demonstrating the lability of lymphoid tissue, and a warning against unduly rigid concepts of normality."[9]

Present Study

To clarify the nature and diversity of the structural changes in the pharyngeal tonsil produced by the various stimuli, a pilot study was undertaken in which extirpated adenoid tissue of 25 children, ranging in age from 2½ to 14 years, was inspected microscopically. The tissue specimens were those routinely sent to the hospital laboratory after adenoidectomy and, therefore, were unselected.

FIG. 1

Classification of adenoidal follicular enlargement 1+ (H & E stain x 80).

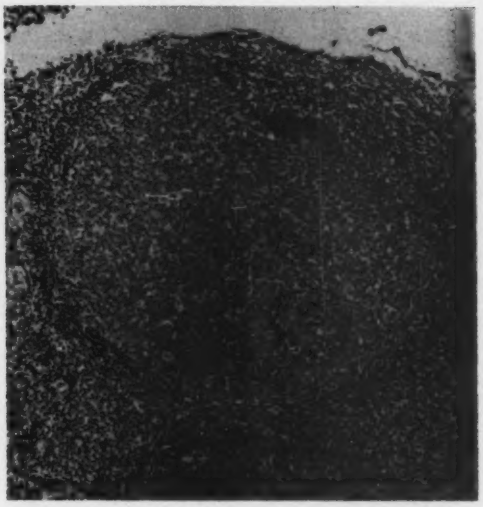
Hemotoxylin—eosin stained sections were examined, arbitrarily noting the following structural features:

1. *The degree of follicular enlargement.*
   (a) 1+ denoting what corresponds to small "normal" follicles as seen in lymph nodes, and composed mainly of lymphocytes;
   (b) 2+ to 4+ denoting increasing degrees of enlargement of follicles (due mainly to the increasing size of germinal centers) (Figs. 1 and 2).
2. *The degree of cellularity of the reticulum* (irrespective of cell type) (1+ to

FIG. 2

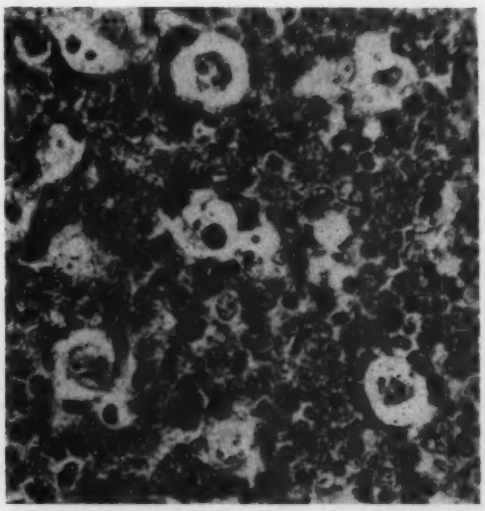
Classification of adenoidal follicle enlargement 4+ (H & E stain x 46).

FIG. 3



Degree of follicular histiocyte proliferation 1+ (H & E stain x 120).

FIG. 4



Degree of follicular histiocyte proliferation 4+ (H & E stain x 530).

4+ denoting increasing degree of cellularity).

3. *The degree of fibrosis* (1+ to 4+ as above).
4. *The degree of follicular histiocyte proliferation in the pulp* (1+ to 4+ as above) (Figs. 3 and 4).
5. *The degree of reticulum cell proliferation in the pulp* (1+ to 4+ as above).
6. *The degree of tissue eosinophilia* (1+ to 4+ as above).
7. *The state of the epithelium.*
8. *Other features of interest.*

Factors Related to Difference from Lymphoid Tissue in General

Although it is clear that lymphadenoid tissue reacts quantitatively and qualitatively to the various stimuli, certain factors related to its differences from lymphoid tissue in general should be emphasized:

1. The anatomic situation of adenoid tissue with special reference to the direct and indirect effects of various stimuli (noxious or other agents).
2. The epithelial component of this tissue (mainly respiratory type).
3. The lack of afferent lymphatics.
4. The response of lymphoid tissue in general to the stimuli of antigens, hormones and other humoral factors.
5. The differences in general lymphoid reactivity of hosts to antigenic, hormonal and other humoral factors.

Observations from Study

The following observations were made from the routinely (H & E) stained adenoid tissue specimens:

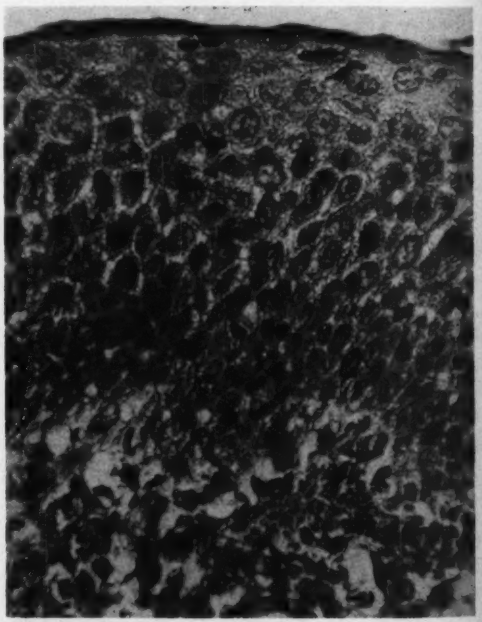
1. There was a decided variation of follicular size and general reactivity of lymphoid elements that bears little or no relationship to: (a) allergic history, (b) severity of symptoms, (c) peripheral blood eosinophilia, and (d) medication.
2. There appeared to be a correlation between squamous metaplasia of the overlying respiratory epithelium and the severity of symptoms. (This is similar in effect to that noted in bronchial or other specialized epithelium exposed to prolonged injury or nutritional diseases.) (Fig. 5.)
3. Certain miscellaneous, inconstant, and apparently (presently) noncorrelated histologic findings were noted: (a) intestinal type mucous glands in 2 specimens; (b) prominent mucous cysts and lakes in 2 specimens; (c) small cholesteatomas; (d) uncorrelated obliteration of crypts in most specimens; and (e) focal interstitial edema in 4 specimens.

Correlation of Tissue Changes With Historical Data

There are many unexplored factors in this pilot study which probably accounted for the failure to correlate the tissue changes noted in each specimen with its associated historical data:[9,11]

1. The inadequacy of routine staining technics;
2. Variations in host reactivity to antigenic stimuli;
3. The protean effect of growth, sex and adrenocortical hormones on lymphoid tissue;

FIG. 5



Squamous metaplasia of respiratory epithelium of adenoid tissue (H & E stain x 530).

4. The normal variation in the structural pattern of adenoid tissue; and
5. Aging changes of so-called normal adenoid tissue.

Comment and Conclusions

One of our main objectives was to demonstrate as many as possible of the patterns of lymphadenoid tissue produced by the various known stimuli. Tissue changes observed in the present study were analogous to the variations in the normal lymph node, previously mentioned as described in animal studies.

As concerns the regeneration of adenoid tissue, incomplete operation undoubtedly is the main offender but not the sole cause of the tissue regrowth. Despite meticulously executed operations, the commonly known reactive processes play a prominent role. When one also considers the anatomic situation of the lymphadenoid tissue, which virtually is an integral part of the nasopharyngeal mucous membrane, and the likelihood of injuring contiguous structures by operative intervention, it is at once understandable why a complete removal of adenoids is well nigh impossible.[12,13,14]

From the pathologist's point of view, our study seemed to open a curtain revealing broad vistas of possible avenues of investigation which should involve: (1) the application to adenoid tissues of more specific and more satisfactory staining technics, especially demonstration of metalophil cells, enzyme localization, and fluorescent antibody technics; and (2) the analysis of "normal" variations in adenoid tissue patterns, with special reference to the normal differences in reactivity of the host.

From the clinician's point of view, the absolute need for a more comprehensive investigation of the hormonal influences on adenoid tissue must be emphasized.

The total clinical significance of qualitative studies of lymphadenoid tissue remains to be assessed. Sufficient has been learned, however, to advocate that such studies should be performed as a routine in every hospital.

Summary

Pathologic alterations which develop in the lymphadenoid tissue probably can be accounted for by various local and systemic stimuli.

The group of nodular structures closely associated with the lymph-vascular system should be regarded as lymphoid organs.

Atrophy, hypertrophy or hyperplasia of lymphoid tissue often develops without known cause, but reactive processes from within or without the body undoubtedly play a prominent role.

If a lymphoid organ is completely extirpated, regeneration usually does not take place in the same area, but fresh lymphoid tissue develops in other organs.

Although it is uncertain whether the morphologic variations in the normal lymph node of man are similar to those of animals, the patterns observed "are of value in demonstrating the lability of lymphoid tissue and a warning against unduly rigid concepts of normality."

A pilot study of excised adenoid tissue was undertaken to determine the nature and diversity of the structural changes based on arbitrarily established criteria.

Although lymphadenoid tissue reacts quantitatively and qualitatively to various stimuli, there are several factors related to its difference from lymphoid tissue in general.

The present study revealed a lack of correlation of the histologic alterations, their possible causes, and their associated historical data.

It is conjectured that many factors, if adequately explored, probably could account for this failure.

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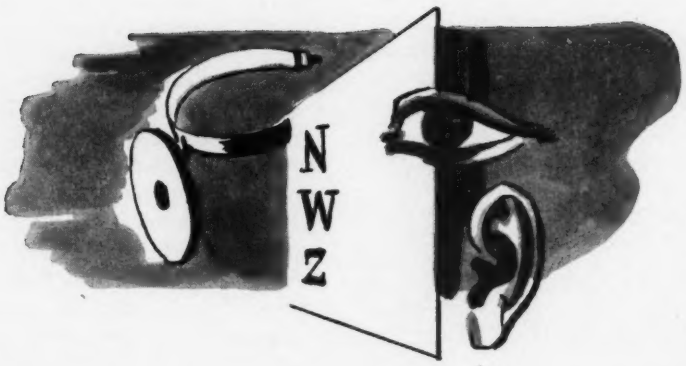

Primary Carcinoma of the Fallopian Tube*

SALLYE J. TONIETTE, M.D., *Sulphur, La.*, ALONSO VELARDE, M.D., and GEORGE A. WILLIAMS, M.D.,† *Atlanta, Ga.*

The preoperative diagnosis of this relatively rare lesion is made but rarely. A thought of pelvic inflammatory disease in the postmenopausal woman should suggest the possibility of this unusual carcinoma. The outlook is poor except following early operation.

PRIMARY CARCINOMA of the fallopian tube is a rather uncommon tumor, only 560 cases having been reported to date. Five year survivals seem to be about 5% and there is an even greater paucity in the number of preoperatively diagnosed cases which does not exceed six. The latter indicates the gravity of the problem and is accounted for in part by the lack of specific early signs and symptoms; by the extreme frequency of benign lesions which the growth, usually situated in the distal end of the tube, may mimic; and of associated disease by which it may be obscured. Undoubtedly, many cases do not reach the literature because of the widespread conviction that a single case, unsuccessfully treated, cannot be a valuable contribution to the common knowledge. In the 10 year period 1948 to 1958, only 6 cases of carcinoma of the fallopian tube occurred at the Crawford W. Long Memorial Hospital.

Clinical Characteristics

The average age of patients in the literature at our disposal was 56 years, with extremes of 35 and 72 years. Hu, Taymor and Hertig[1] reported 12 cases aged 34 to 67 years, the majority of them between 40 and 60 years. Frankel[2] reported the average age to be 49 with extremes to be 38 to 61 years.

Five of our 6 patients were postmenopausal and none of them had had any premenopausal difficulties. One had menses which were regular but short and scanty. Three of the 5 postmenopausal women had intermittent bleeding for periods of a few weeks to a year. Another of these patients had leukorrhea and bleeding after hormone therapy and one had neither vaginal bleeding nor leukorrhea.

Sterility was present in 27% of the cases in the series of Hu, Taymor and Hertig[1] and in 30% of those of Frankel.[2] In our series all 6 patients were married but 2 were childless. The most fertile of them had only 3 children.

The most common symptom of carcinoma of the fallopian tube is said to be "vaginal discharge." This was present in 3 of our 6 cases in varying amount and in color from a whitish-yellow to bloody. This discharge appeared intermittently for periods of 2 weeks to 6 months. None of our patients described any symptoms suggestive of hydrops tubae profluens.

Pain as well as discharge was a complaint in half of our patients and varied from a vague lower abdominal discomfort to severe agonizing pain. Two of the 3 had unilateral pain on the side of the lesion. The duration of pain varied from a single day to 6 months. One patient with severe pain for one day had a typical history of endometriosis. Hu, Taymor and Hertig[1] reported the same incidence of pain in their series.

Mason[3] reported that a palpable mass in the adnexa is a constant physical finding, and this was true of our series. The masses were varied in location, consistency, mobility and size in each. Only one patient discovered the tumor herself before going to a physician.

In the literature at our disposal, ascites was associated with carcinoma of the tube in 10% of the cases. It was not found in any of our cases previous to operation, but in half

*Read before the Section on Gynecology, Southern Medical Association, Fifty-Third Annual Meeting, Atlanta, Ga., November 16-19, 1959.

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of them it developed postoperatively within 2 months to 2 years.

Emge,[4] in 1948, stated that in only 3 reported cases of primary carcinoma of the fallopian tube had the correct diagnosis been made prior to the surgical exploration or autopsy. Since 1950, 26 cases have been reported and a preoperative diagnosis had been made in only 3 instances. Papanicolaou smears usually have been of little value probably because of tubal occlusion. Ayre,[5] however, believes that the increasing use of cytologic studies in screening programs will result in the earlier diagnosis of tubal cancer. Smears made in 2 of our 6 cases proved to be of no significance. The 6 were diagnosed preoperatively as pelvic inflammatory disease, ovarian cyst with or without twisted pedicle, and fibroid tumors or sarcoma of the uterus. A diagnosis of symptomatic pelvic inflammatory disease in postmenopausal women should always be received skeptically.[6]

Pathologic Findings

In our patients the gross findings varied from a 3 cm. hydrosalpinx to a 10 cm. twisted adnexal mass. In 2 patients operated on by us, an operating room diagnosis was made by frozen section. The surgical pathologic finding was the typical picture of carcinoma of the fallopian tube as described in the textbooks, although in one there also was extensive endometriosis.

Salpingitis was the most common associated lesion. Other incidental findings were ovarian cysts, leiomyomas of the uterus, hyperplasia of the endometrium, tubo-ovarian abscess, fibroma of the ovary, and extensive pelvic endometriosis. Metastasis to the ovary was found in 2 patients, one of whom also had extension to the endometrium.

The primary tumor was bilateral in 2 cases; in 4 it was unilateral; twice on the left and twice on the right. Histologic types were described as papillary in 5 of the cases with no mention of the type of adenocarcinoma of the fallopian tube in one.

Treatment and Results

The accepted treatment of primary carcinoma of the fallopian tube today is a total hysterectomy and bilateral salpingo-oophorectomy, followed by radiation. Due to the multiplicity and varied training of the operators in our series, including general surgeons, the methods of treatment were varied, some being inadequate. Two patients had total hysterectomy and bilateral salpingo-oophorectomy followed by external radiation. One had a total hysterectomy and bilateral salpingo-oophorectomy, but irradiation was not given until ascites developed. Another had a bilateral salpingo-oophorectomy and postoperative external radiation. Two patients had supracervical hysterectomy and bilateral salpingo-oophorectomy without irradiation; these women died 2 and 3 months postoperatively.

One patient treated by bilateral salpingo-oophorectomy followed by irradiation developed ascites 2 years postoperatively and was treated with intraperitoneal nitrogen mustard. At present she is doing well and the ascites is controlled. Another patient is living with recurrence and ascites at 13 months.

The other 2 patients are living and well with no evidence of recurrence. One of these has survived ten and one-half years and one 2 years. Both were treated by total hysterectomy, bilateral salpingo-oophorectomy and postoperative irradiation.

Case Reports

Case 1. A 72 year old white gravida 0 was admitted July 8, 1948, with chief complaint of a bloody discharge for 3 weeks. The menopause had occurred at the age of 50. In 1945, dysuria and a bloody discharge were troublesome and a diagnosis of ulcerated urethral caruncle was made. It responded satisfactorily to topical stilbestrol.

Examination was essentially negative except for the pelvic findings: The cervix was of normal size, shape and position but tender to manipulation. The uterus was enlarged, retroverted slightly and irregular in outline, tender to palpation, and fixed in the cul-de-sac. The adnexa were negative except for tenderness. *Preoperative diagnosis* was sarcoma of the uterus.

At operation, August 10, the distal end of the right fallopian tube was occluded with hydrosalpinx. Total hysterectomy and bilateral salpingo-oophorectomy was performed. *Pathologic diagnosis* was adenocarcinoma of the fallopian tube.

The postoperative course was uneventful and the patient was discharged on the 8th day. She received external irradiation (8,000 r. measured in air over 4 ports). At the present she is well with no evidence of recurrence.

Case 2. A 59 year old white gravida 2, para 2, 9

years past her menopause, was first seen by her physician in January 1952, with a chief complaint of dysuria and frequency which cleared with treatment. On March 6, 1952, she was admitted to the hospital, complaining of fullness in the lower part of her abdomen and vaginal bleeding for one month. General examination was essentially negative. Pelvic examination revealed the cervix to be of normal size, shape, and position. The uterus and adnexa were unsatisfactorily outlined because of obesity. *Preoperative diagnosis* was postmenopausal bleeding and pelvic inflammatory disease.

Supracervical hysterectomy, bilateral salpingo-oophorectomy and appendectomy were performed March 7. Pathologic specimen consisted of a left tube and ovary fused together. The tube was distorted, its diameter ranging 1.0 cm. in the proximal end to 3.0 cm. in the distal portion. The serosal surface was greyish-white in color with areas mottled with orange. The right ovary was 2.5 cm. in diameter and very firm in consistency.

Pathologic diagnoses were: (1) adenocarcinoma of the left fallopian tube extending to the ovary and to endometrium; (2) bilateral chronic salpingitis; (3) tubo-ovarian abscess (left); and (4) fibroma of right ovary.

The postoperative course was uneventful and she was dismissed on the 14th day. No irradiation was given. She was readmitted 2 months later and died of carcinomatosis of the abdomen and ascites.

Case 3. A 50 year old white woman, gravida 3, para 3, 20 months postmenopausal, was admitted on Nov. 15, 1953, with a chief complaint of a whitish-yellow vaginal discharge for 1 year, and moderate abdominal pain of 3 weeks duration. Prior to admission, her family physician gave her hormone injections, after which she bled for several days. *Admission diagnosis* was pelvic inflammatory disease and right ovarian cyst.

Bilateral salpingo-oophorectomy was performed November 16. Pathologic specimen consisted of a right fallopian tube which was enlarged with irregular masses within the lumen. The largest of these measured 3 by 4 cm. and was of firm consistency. Both ovaries were enlarged, soft and "granular." The uterus was of normal size and consistency. *Pathologic diagnosis* was extensive papillary adenocarcinoma of the fallopian tubes with extension to the ovaries.

Eleven days later supracervical hysterectomy was performed. There were numerous adhesions involving the colon, rectum, small intestines, omentum and uterus. The bladder was markedly inflamed. *Pathologic diagnosis* was cystic hyperplasia of endometrium and metastatic papillary adenocarcinoma in serosa and myometrium.

No irradiation was given the patient who died 3 months after the second operation with carcinomatosis of the abdomen and ascites.

Case 4. A 55 year old white woman, gravida 2, para 1, was admitted on Jan. 18, 1956, with a chief complaint of sharp lower abdominal pain for 6 days.

She had had the menopause at the age of 45. Five years later she had intermittent vaginal bleeding, and in June 1955, curettage and biopsy of the cervix disclosed cystic hyperplasia of the endometrium of prolonged estrin type and chronic cervicitis. Pelvic examination was said not to have been remarkable.

On admission, examination revealed a slightly movable, firm, abdominal mass 10 cm. in diameter, which was moderately tender to palpation. The cervix was normal. The uterus was anterior and somewhat enlarged. To the left and apparently part of the uterus was an 8 by 10 cm. firm nodular tender mass. The right adnexa were normal except for slight enlargement of the ovary. *Preoperative diagnosis* was "pelvic inflammatory disease versus pelvic malignancy."

At operation on January 23, bilateral pyosalpinx was found, the right being 13.5 cm. and the left 5 cm. in diameter. Each was filled with a yellowish purulent material. Intestinal and omental adhesions were present. Bilateral salpingo-oophorectomy was performed. The uterus was not removed due to "a drop in blood pressure." *Pathologic diagnosis* was extensive papillary adenocarcinoma in the fallopian tubes and ovaries consistent with primary bilateral tubal origin and bilateral pyosalpinx.

The postoperative course was uneventful. She received x-ray radiation, tumor dose of 2,540 r. to pelvis and 2,250 r. to aortic nodes, while in the hospital and was dismissed on Feb. 3, 1956. In December 1958, ascites developed and nitrogen mustard was given intraperitoneally. At present she is comfortable and ascites has not recurred.

Case 5. A 35 year old white woman, gravida 2, para 0, was first seen Sept. 10, 1942, because of a sterile marriage and vulvar warts. Examination of husband and wife was essentially normal as was laboratory work including semen analysis. An early abortion had occurred in 1941.

The patient gradually acquired the typical clinical picture of pelvic endometriosis involving the left ovary. By Jan. 18, 1957, this had become quite troublesome when she reported for examination on account of herpes simplex of the anoperineal region. In September 1957, the patient was seen for an attack of urinary frequency and terminal tenesmus; the urine was clear. Pelvic examination revealed little change except for a tender urethra. Cystourethroscopic examination was essentially normal except for a mild stricture near the meatus. Routine cytologic smears of that date were reported Class II. Symptoms improved on dilation of the urethra. She was seen as an emergency on Dec. 12, 1957, complaining of severe constant pulling pain in the left lower quadrant. The last menses had been on time but short and scanty. Examination showed the left lower quadrant to be exquisitely tender. Pelvic examination revealed a small area of typical endometriosis on the anterior lip of the cervix, the uterus to be small and displaced to the right by a large, tensely cystic, exquisitely tender mass about 8 cm. in diameter. A tentative diagnosis of torsion of the left adnexal mass was made, and the patient was brought to the hospital for emergency laparotomy.

Surgical pathologic specimen consisted of a left

adnexal mass with pedicle, twisted 360 degrees. There was a smooth-walled ovarian cyst 8 cm. in diameter with no excrescences on it. The tube was dilated at its distal end and contained a soft, yellowish, necrotic tumor measuring 4 by 3 cm. The fimbriated end of the tube was adherent to the rectosigmoid. The uterus was grossly normal as were the right tube and ovary except for endometrial implants on the right tube and in the cul-de-sac. The appendix was knuckled on itself, appeared to be acutely inflamed and contained a large fecalith.

Total hysterectomy, bilateral salpingo-oophorectomy and appendectomy were performed. *Pathologic diagnosis* was: (1) papillary adenocarcinoma of the left fallopian tube with extension to the serosa; (2) endometriosis of cervix, both fallopian tubes, left ovary and appendix; (3) leiomyomata uteri; and (4) chronic cervicitis.

The postoperative course was uncomplicated, and she was dismissed on the 6th day. Over a period of 7 weeks she was given x-ray irradiation,—9,000 r. measured in air to the pelvis through four ports and 2,250 r. to the aortic lymph nodes. A "second look" laparotomy was performed on Aug. 3, 1959, because of a mass in the pelvis, which proved to be a fibrosed fat lobule and foreign body reaction about suture. No evidence of tumor was found. X-ray film of the chest was negative. At present, the patient is in good general condition, symptom free, and without evidence of recurrence.

Case 6. A 58 year old gravida 3, para 1, 6 years postmenopausal, was seen in the clinic August 1958, with the chief complaint that a mass in her lower abdomen, which had been present for 6 months, was increasing in size and causing lower abdominal pressure. There was no history of vaginal bleeding or leukorrhea, except a single episode 2 years previously, which had been diagnosed as a cervical polyp. She had diabetes and hypertensive cardiovascular disease with episodes of congestive heart failure.

Examination was essentially negative except for obesity and the pelvic findings which revealed a 10 by 12 cm. semicystic mass which was movable and situated slightly to the right of the midline. The uterus and right adnexa could not be definitely outlined. The left adnexa were essentially normal. Papanicolaou smear was reported as Class II. Chest x-ray study was negative. *Preoperative diagnosis* was right ovarian tumor.

Laparotomy disclosed a 10 by 12 cm. cystic right ovarian mass, enveloped by the right infundibulopelvic ligament and right fallopian tube, which was sausage shaped, cystic, and measured approximately 12 by 4 cm. The external surface was smooth and the fimbriated end was not patent. In the outer one third of the tube was a palpable, firm mass which was movable within the lumen and measured 2.5 by 4 cm. The tube was adherent to the right infundibulopelvic ligament and broad ligament but was easily dissected away. The ovarian mass contained a dark bloody exudate. The uterus and left adnexa were grossly normal. There was no evidence of extention of the disease to the omentum or peritoneum and no palpable lymph nodes.

Total hysterectomy and bilateral salpingo-oophorectomy were performed. Microscopic findings were: (1) adenocarcinoma in the distal end of the right fallopian tube consistent with primary tubal origin; (2) extensive chronic salpingitis, right, with tubo-ovarian cyst; (3) cystic hyperplasia of the endometrium; and (4) endometrial polyp.

The postoperative course was uneventful. The patient remained well for 11 months, when ascites developed. Laparotomy revealed widespread small peritoneal implants. External irradiation was given,—9,000 r. measured in air to pelvis through four ports and 2,250 r. to upper abdomen. (See Table 1.)

Conclusions

In keeping with general experience, the picture of primary carcinoma of the fallopian tube at our institution is not a pretty one. It is unfortunate that a tragic disease of

TABLE 1

Case	*Age*	*Parity*	*Initial Symptoms*	*Preoperative Diagnosis*	*Situs*	*Operation*	*Irradiation*	*Result*
1	72	0	Bloody discharge	Sarcoma of uterus	Right	Total hysterectomy; bilateral S-O*	Yes	Living and well (11 years)
2	59	2	Bloody discharge, abdominal fullness	Pelvic inflammation	Left	Subtotal hysterectomy; bilateral S-O; appendectomy	No	Died at 2 mo.; carcinomatosis of abdomen
3	50	3	Leukorrhea, abdominal pain	Pelvic inflammation; ovarian cyst	Bilateral	(1) bilateral S-O; (2) Subtotal hysterectomy	No	Died at 3 mo.; carcinomatosis of abdomen
4	55	1	Abdominal pain	"P.I.D." vs. malignancy	Bilateral	Bilateral S-O	Yes	Living with cancer (ascites) at 2½ years
5	35	0	"Acute abdomen"	Endometriosis; torsion of adnexa	Left	Total hysterectomy; bilateral S-O; appendectomy	Yes	Living and well at 2 years
6	50	1	Mass in abdomen; pressure	Tumor of ovary	Right	Total hysterectomy; bilateral S-O	Delayed 11 mo.	Living with cancer (ascites) at 12 mo.

*Salpingo-oophorectomy.

woman may mimic lesser conditions in symptomatology, and in its earlier asymptomatic stages may be obscured by coexisting trivial lesions. Even in women who undergo periodic gynecologic examinations, diagnosis of early neoplasms of the tube is difficult. Cytologic methods are likely to fail because of the frequency of occlusion of the involved tube but an occasional case should come to operation as a result of such studies. Adnexal masses in postmenopausal women should never be ascribed to such things as pelvic inflammation or functional cysts; nor should genital discharges in such patients go undiagnosed. If thorough study does not reveal the cause of the discharge, laparotomy should be performed. Pain, when due to tubal carcinoma, is an ominous symptom.

Our experience tends to confirm that the best management of primary carcinoma of the fallopian tube is total hysterectomy and bilateral salpingo-oophorectomy with postoperative irradiation. Resection of the omentum may be of value although it was not done in our cases. The place of lymph node excision is yet to be evaluated. Intraperitoneal radioactive gold or chemotherapy at the time of operation or shortly thereafter deserve evaluation in an effort to rid the operative field of seeded cells. It is of proven value in the treatment of ascites due to implants. Kottmeier's experience with intracavitary radiation postoperatively in ovarian cancer suggests that his method should be evaluated in tubal carcinoma.

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Discussion (Abstract)

Dr. Thomas A. Wilson, Washington, D. C. This paper, as with previous reports, emphasizes the difficulty in preoperative diagnosis and the unfortunate results of most treatments. The lesion in its earliest stages is silent, as with ovarian tumors. When the victim is finally in the hands of a physician a dilemma is usually present because the disease is mistaken for an inflammatory or a benign condition.

In briefly going over the combined experience of two Washington hospitals we were able to find 10 cases. Of the 10, all were postmenopausal and the variety of presenting complaints and operative therapy follows roughly the present report. One patient operated upon in 1954 is living and well. Two other patients are alive but with disease. One has been lost to follow-up and is presumed dead. Hence, of 10 patients only one is living and well.

As to irradiation therapy, we have withheld treatment until evidence of recurrence or unless metastasis is present at operation. We have used irradiation for palliation rather than for cure.

This paper also says that a more radical approach to disease in postmenopausal women is mandatory. A more complete study of patients who present abnormal smears is also in order and possibly a wider use of the culdoscope would add to our cure rate.

Two patients who have come to our attention recently illustrate this point. One patient was picked up with a Class IV vaginal smear. A D. & C. and conization of the cervix failed to reveal any evidence of a lesion. Postoperatively the smears remained Class IV but the patient was followed. In a few weeks what was thought to be bilateral salpingo-oophoritis developed and after a time of conservative treatment the patient was operated upon and found to have a primary carcinoma of the fallopian tube. The other patient is a patient of Dr. Sites of our hospital who presented herself with a Class V smear. A diagnostic D. & C. and conization of the cervix again failed to reveal any evidence of disease. The pelvis was free on examination. The smears persisted in Class IV and Class V and accordingly the patient was opened and to Dr. Sites' astonishment was found to have a carcinoma of the gallbladder.

I have enjoyed discussing this paper and I congratulate the essayist.

Posthypoglycemic Encephalopathy*

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The dangers of recurrent and severe bouts of hypoglycemia are emphasized. The management of diabetes must be meticulous with respect to the use of the long-acting insulins in particular. Severe and prolonged hypoglycemia may lead to irreparable damage to the brain.

THE OBJECT OF THIS ARTICLE is to call attention to the occurrence of permanent damage to the brain following prolonged episodes of hypoglycemia and the necessity for the prevention and the immediate treatment of such attacks.

Even before the introduction of insulin, Joslin[1] recognized that hypoglycemia was a very serious factor in the treatment of diabetes. By 1922 experiments had been performed in animals showing the development of characteristic symptoms, quickly leading to death, paralleling decreasing blood sugar levels.[2] In an early case of diabetes in which treatment was with insulin, Woodyatt[3] reported that hypoglycemic convulsions developed, and in spite of administration of glucose with restoration of hyperglycemia and glycosuria the patient died without regaining consciousness. In 1928, Wohlwill[4] made the first detailed study of cerebral changes in the diabetic dying from insulin shock, and in the same year 6 cases of transient hypoglycemic hemiplegia were summarized from the reported literature.[5] In the first case of a benign tumor of the islands of Langerhans with hypoglycemia proved by antemortem blood studies, reported by McClenahan and Norris,[6] there were evidences of meningeal and cerebral irritation on postmortem examination. Subsequently there have been many case reports of diabetic patients with hemiplegia, other neurologic symptoms, and a persistent unconsciousness lasting for from a few days to a month after an episode of hypoglycemia, in spite of adequate treatment to raise blood sugar levels to normal or higher.

The clinical entity now being discussed, posthypoglycemic encephalopathy, has previously been reported under such headings as fatal hypoglycemia, mental deterioration associated with convulsions and hypoglycemia, cerebral damage from insulin shock, irreversible or hyperglycemic insulin coma, prolonged coma after insulin hyperglycemia, fatal hyperinsulinism with cerebral lesions due to pancreatic adenoma, posthypoglycemic coma or syndrome, and psychiatric complications of hypoglycemia in children.[4] In 1933, Wilder[7] wrote: "A feature about this type of coma (hypoglycemia) that is very characteristic is its rapid termination when glucose is administered—but recovery is less certain, less rapid and less complete, even when sugar is given, the longer it persists. Irreversible changes may then occur in the brain: degeneration of the ganglion cells, or hemorrhages as described by Terbrüggen." In 1947, Jones[4] reported 3 cases with persistent neurologic symptoms after blood sugar levels had returned to normal following insulin reactions and suggested the term, posthypoglycemic encephalopathy, as a preferable descriptive term for this clinical entity.

A typical case, previously reported in detail follows.[4]

A 26 year old white male diabetic was first seen at 6 p.m. The patient had been taking 50 units of protamine zinc insulin daily and had had several mild insulin reactions during the preceding 2 weeks. The day before he was seen he had changed his working hours to the midnight to 8 a.m. shift. The patient's wife had not seen him all day on this particular day, but when she returned home at 5:30 p.m. she found the patient lying on the floor unconscious with the eggs he ordinarily cooked for breakfast burned to a crisp with the gas fire beneath them still burning. When the patient was seen he was perspiring profusely and was totally unresponsive. Teeth were occasionally grinding together; the skin was warm and moist; the temperature 101°. There was no fruity odor to the breath nor evidence of dehydration.

He was given 30 cc. of 50% glucose intravenously and responded enough to take about 100 Gm. of sugar in solution, but in spite of this his movements became

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irrational and meaningless and he lapsed back into a stupor. When he was conscious enough to drink he was not able to answer questions or make any meaningful sounds. He was taken to the hospital where he was given glucose intravenously. However, he remained quite unruly, violent and irrational, having occasional mild convulsive seizures, in spite of high or normal blood sugar levels after he was admitted to the hospital. The patient's response to small doses of insulin was then much intensified and on the second day of hospitalization, after a total of only 15 units of regular insulin since hospital admission, a true blood sugar level of zero was obtained at a time when there was no change in the hospital course. The patient continued to be restless, drowsy, uncooperative and mentally confused for 2 more days during which the blood sugar levels were always high. He finally became rational 3 days later.

A fatal termination occurred in the following case.

A 55 year old white male diabetic, who was taking fairly large amounts of insulin, did not adhere to any specific diet. As in the first case, his hypoglycemic episode had apparently lasted 10 or 12 hours before he was first seen for this difficulty and was apparently precipitated by his eating only a bowl of soup instead of an adequate evening meal.

When the patient was seen at 11 a.m., he was unconscious, perspiring excessively, had a temperature of 104° and pulse rate of 130. There was excessive salivation and much mucus in the throat; crepitant rales and coarse rhonchi were heard over both lung fields. Occasional fine tremors involved the patient's body.

He failed to respond to 25 Gm. of glucose intravenously and therefore was admitted to the hospital where more glucose was given intravenously. At 2:30 p.m. the blood sugar level was reported as 164 mg. per 100 ml. The patient was given no insulin, and the 8 a.m. blood sugar level the next day was recorded as 53 mg. per 100 ml. He continued unable to swallow, was generally unresponsive, at times was restless and crying out irrationally, was incontinent of urine and feces, and apparently thereafter never moved his left arm or left leg. A positive Babinski sign was present bilaterally. Left ankle jerk and patellar reflexes were present but diminished, otherwise the neurologic examination was normal. The patient was unable to follow any commands. In spite of maintenance of liquids and carbohydrates, and the use of only small doses of insulin which caused blood sugar levels to vary from 74 to 346 mg. per 100 ml. during the remainder of the hospital course, and in spite of treatment for his pneumonia, the patient died 18 days later.

Examination of the brain at necropsy showed some loss of ganglion cells, increase in interstitial cells, necrosis of the third layer of cortical cells and other changes characteristic of extensive cortical encephalomalacia.[4]

Since the reporting of these cases, I have either seen or have had described to me from my community at least 5 other similar cases of severe damage of the central nervous system persistent after hypoglycemic episodes of fairly long standing.

Discussion

Dameshek and associates[8] have shown that the difference in dextrose content between blood drawn from the carotid artery and the internal jugular vein was greater than that between the brachial artery and the basilic vein, and Himwich[9] has shown that oxygen utilization and the metabolic rate of the brain are decreased during severe hypoglycemia. Gerard[10] reported that the respiration of the brain, that is, oxygen consumption per unit mass, is about thirty times as intense as that of muscle or nerve. It is generally agreed that dextrose is essential in the normal utilization of oxygen by brain tissue, and that acute anoxia or hypoglycemia affects first the cerebral cortex, next the upper portion of the brain stem, and finally the medulla.

Grayzel[11] reported that rabbits, in which hypoglycemia was experimentally produced, showed definite lesions of the central nervous system, and that zones of necrobiosis were more noticeable in the pyramidal cells of the third and fifth cortical layers. Other animal experimentation has shown hypoglycemia to produce liquefaction, vacuolization and homogenization of ganglion cells, marked shrinkage of cytoplasm and nuclei, diminution in the number of neurons in various cortical areas, and small microscopic hemorrhages.[4] Sherrill and Mac Kay[12] reported a variable degree of hemorrhagic edema of the lungs in experimental animals with hypoglycemia, probably similar to the pulmonary edema seen in the second case above when the patient was first seen in hypoglycemia. Baker[13] at first believed that changes found in ganglion cells on postmortem examination of 3 patients dying after hypoglycemia were due to postmortem degeneration, but in later papers concluded that these were antemortem changes. He subsequently reported extensive brain damage, congestion, hemorrhages, patchy demyelinization, cyst formation, encephalomalacia with necrotic and active proliferation, various degrees of cellular degeneration, and gliosis following hypoglycemia. Numerous other similar reports have appeared subsequently. It has been reported difficult to distinguish less severe nerve cell changes from postmortem alterations.

Schereschewsky[4] and others have found necrosis and hemorrhage into the adrenal glands after hypoglycemia. There were similar findings in the above mentioned second case which could account for the patient's persistently decreased insulin requirement after his hypoglycemic episode although he continued to receive 350 Gm. carbohydrate daily.

Cases of posthypoglycemic encephalopathy have been reported in every age group, as frequently in children as in adults. Rascoff and associates[14] reported a case of hypoglycemia in a newborn with hypertrophy and hyperplasia of the islands of Langerhans, and dying 13 hours after birth. The mother was a latent diabetic. In his article published in 1947, Jones stated that, "Although posthypoglycemic encephalopathy, to the author's knowledge, has not definitely been reported following hypoglycemia of the newborn, it remains a definite possibility to be considered in determining the etiology of mental deficiency states of childhood."[4] Subsequently, McQuarrie[15] reported his cases of idiopathic spontaneous hypoglycemosis in a series of infants who have suffered irreparable brain damage from severe hypoglycemia. McQuarrie pointed out that if the hypoglycemic state goes unrecognized, mismanagement persists until permanent hypoglycemic brain damage becomes apparent. According to McQuarrie's figures, idiopathic infantile hypoglycemia occurs more frequently than diabetes in the corresponding age group prior to the age of five. The use of ACTH to elevate the levels of blood sugar in these cases and its beneficial results in the prevention of brain damage were remarkable.

Numerous authors have reported other evidences of permanent damage to the brain in children following hypoglycemia. This was discussed in a previous review.[4] Among the more serious consequences reported in children have been those of convulsions persisting after this type of brain damage, mental deficiency, transitory hemiplegia, ataxia, aphasia, idiocy, persistent unconsciousness, cerebral atrophy, severe behavioral disorders, negativism, catalepsy, grimacing, motor restlessness, apathy and dullness.

Many similar cases have been reported in adults, not only in diabetics, but also following the Sakel form of shock therapy for schizophrenia, and in cases with pancreatic adenoma. The case reported by Root and Styron,[4] in which the patient remained in a comatose state for 23 days and finally died with terminal bronchopneumonia and sepsis, is similar to the second case reported here. Another similar case with coma for 17 days and terminating in death is reported by Lawrence and collaborators.[4] Cases of Korsakoff's syndrome persisting for several months after hypoglycemic shock have been seen. There have been instances in which a combination of hypoglycemia and arteriosclerosis seemed to cause the cerebral damage. Murphy and Purtell[16] reviewed 26 cases of hypoglycemia with cerebral damage and concluded that the most common aftermath was profound damage, both mental and in personality. Such extensive damage left the patient with the intellectual level of idiocy; less damage resulted in mental retardation, apathy, and dullness, at times progressing to true psychoses. Parkinsonism, aphasias, hemiplegias, muscular atrophies, neuritic symptoms, and objective neurologic changes have persisted indefinitely. Halle and Ross[17] have reported their observations of electroencephalographic studies made in patients with neurologic changes persisting after hypoglycemia, suggestive of decreased rates of cerebral metabolism.

It has been concluded that persistent coma after cessation of hypoglycemia is a distinct entity, related only in a secondary sense to the previous hypoglycemia. Thus, in the first case described above there was a state of mental confusion and changed personality. Apparently the hypoglycemia persisted for three days after he was first seen. For two days blood sugar levels were high or normal after the transient drop in blood glucose on the day after admission to the hospital. This drop in blood sugar level undoubtedly resulted from a loss of liver glucose by glycogenolysis during the severe insulin reaction on the preceding day; it indicates the high degree of sensitivity of an individual to insulin after a severe hypoglycemic episode and the necessity of continuing a high carbohydrate intake and cautious use of insulin in spite of high blood sugar levels. The clinical picture was not due to persistent hypoglycemia but to transient cerebral damage caused by the preceding hypoglycemia. In the second example, appar-

ent idiocy, aphasia, hemiplegia and other neurologic changes remained for 18 days after the blood sugar level returned to normal or above. It should certainly be concluded that early and accurate diagnosis of hypoglycemia is imperative, and immediate treatment is very important to prevent this type of complication.

Fazekas, Alman and Parrish[18] concluded that the cerebral metabolic rate was moderately to markedly reduced in all subjects with irreversible posthypoglycemic coma. Experimentally, hypothermia and barbiturates have been found to protect the brain of animals from hypoglycemic damage. This suggests that sedation and hypothermia may be useful adjuncts in therapy in patients to prevent and to treat this complication. An attempt to treat one case of idiopathic hypoglycemosis with glucagon[19] was unsuccessful. Enough cases have been reported from various sources to indicate that ACTH and similar corticotrophins will elevate the blood sugar level and help to prevent this type of brain damage in patients with idiopathic hypoglycemosis.[15] Its use preoperatively in patients with pancreatic tumors may also be of value. Whether it would be of advantage to patients where the cerebral damage has already occurred is unknown, but its use would seem justified under these circumstances. Fabrycant and Bruger[20] indicate that some of the symptoms persisting after an insulin reaction might be those of potassium deficiency and that some hypoglycemic reactions considered heretofore to be irreversible may be corrected by potassium salts. It is definitely agreed, however, that potassium deficiency would be of only secondary importance and is certainly not the cause of the damage to the central nervous system which persists. First and foremost in the prevention of this type of brain damage is early recognition and treatment of patients with hypoglycemia.

Prevention of hypoglycemic episodes is the ideal by which to avoid posthypoglycemic encephalopathy. In diabetics taking any of the longer acting insulins, this may sometimes be accomplished by redistribution of the diet to include a mid-morning snack. It has been my experience that patients using NPH, lente, and globin insulin need mid-afternoon snacks of readily available carbohydrate foods. Patients taking protamine zinc insulin should always be given a fourth bedtime feeding including some protein foods. Maintenance of a high protein content in the diet may aid in preventing drops in blood sugar levels. Patients should be cautioned to take additional carbohydrate in case of unusual physical exertion. The importance of eating on schedule should be stressed to all diabetics. It is obvious that an overdosage of insulin should be avoided. The administration of ACTH and corticoids is of preventive value only in certain types of cases, as those of McQuarrie, and under the circumstances of islet cell adenoma.

Because of the anti-inflammatory effects of these drugs their use might possibly be of value if patients do not respond adequately to intravenous glucose.

The imperative treatment for an established hypoglycemic episode is intravenous glucose. Though sugar solutions by mouth are of value, under some conditions they may not be absorbed. Under certain circumstances when intravenous glucose may not be available and the patient is unconscious, subcutaneous injections of epinephrine may result in a sufficient elevation of the blood sugar so the patient may be able to drink some readily available carbohydrate solution which may produce an early elevation of the blood sugar level. Under emergency circumstances in which the doctor is without facilities to administer glucose intravenously to an unconscious patient, enemas of sugar water or syrup are of value in elevating blood sugar levels. The urgency of such treatment immediately cannot be overemphasized. Other therapeutic measures are of secondary importance in comparison with those aimed at rapidly elevating the blood sugar level.

Conclusion

Numerous cases of changes in personality and mental and neurologic abnormalities following hypoglycemia and persisting after the levels of blood sugar have become normal have been reported previously.

The physiologic and pathologic changes responsible for the clinical behavior are briefly discussed.

It is recommended that the term posthypo-

glycemic encephalopathy be used for this definite clinical entity.

Physicians should be aware of this very serious complication of hypoglycemia and combat any prolonged low blood sugar level vigorously.

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Discussion (Abstract)

Dr. James M. Moss, Alexandria, Va. Dr. Jones should be congratulated for pointing out the dangers of hypoglycemia. In the effort to prevent the degenerative complications of diabetes by keeping the blood sugar as nearly normal as possible some patients are overtreated with insulin. If the hypoglycemia is mild and transient there may be no demonstrable sequela, but intensive and prolonged episodes result in permanent brain damage. Some of the pathetic patients whom I have seen are as follows: One woman became a "decerebrate vegetable" because her physician gave her excessive insulin in an effort to control postpartum lactosuria. An unconscious diabetic man was brought into the hospital emergency room and given a large dose of insulin because the intern made an incorrect diagnosis of diabetic acidosis. After the correct diagnosis of hypoglycemia was made he was given intravenous glucose for 36 hours before he regained consciousness. At this time he was found to have hemiplegia. Another woman was given her usual dose of insulin in the morning, no breakfast, no lunch and then a general anesthetic for elective surgery at 1:00 p.m. When the anesthesia wore off she had the first of several convulsions. The electroencelphalogram showed the typical pattern of epilepsy and the seizures recur unless she takes Dilantin each day. Another woman had an I.Q. of 140 when she graduated from college. After initial regulation of her diabetes in the hospital, she treated herself for 10 years with extra regular insulin anytime that she had glycosuria. She did not consult a physician, had no tests for blood sugar, and had frequent episodes of hypoglycemia. Now she has an I.Q. of 70. A teen-aged boy was taking 90 units of insulin per day and having frequent mild reactions followed by hyperglycemia and acetonuria. He was failing in school and becoming a behavior problem. The diabetes was regulated and stabilized on a dose of 50 units per day, but he had too much brain damage to finish high school. It is better to let your patients develop degenerative complications from a high blood sugar than it is to give them permanent brain damage from a low blood sugar. For best results a normal blood sugar should be maintained in all.

Evaluation of the Jaundiced Patient in the Postoperative Period*

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Jaundice in the patient operated on recently may present a puzzling problem in diagnosis. The diagnostic approach has been well summarized here.

PATIENTS WHO DEVELOP JAUNDICE following a surgical procedure may be classified in four major groups according to the etiology of their jaundice. (1) It may be related to the disease which required operation in the first place. (2) It is secondary to the various therapeutic measures, or (3) the cause of jaundice may not be *directly* related to either, but it may have been precipitated by the metabolic stress of the operative intervention. (4) The jaundice is unrelated to the operation altogether—as in a patient with Gilbert's disease whose bilirubinemia just happened to have been discovered at such an inopportune time.

Complications of operations on the biliary tree are well known and have been frequently and adequately discussed; therefore, I shall not enlarge in detail on this topic presently. It is beyond the scope of this brief discussion to give detailed analysis of the characteristics of all the innumerable causes which may produce jaundice. Instead I would like to discuss some interesting tidbits regarding mechanisms and meanings and some of the commonly used and misused points in the history, physical examination, and laboratory tests.

In evaluating jaundice in a patient who was operated upon following blood loss, and/or shock and who required numerous blood transfusions, one may recall a study of liver function in battle injuries.[1] It was observed that injured young men who do not show an elevation of serum bilirubin level prior to operation, may develop significant elevations of the plasma bilirubin levels soon after transfusions and operation. This elevation is due mainly to the indirect reacting, i.e., crystallin, bilirubin. While the normal liver, with its tremendous reserve capacity, can handle large amounts of bilirubin, the ability of the liver to conjugate and excrete bilirubin is impaired in the presence of hepatic anoxia, associated with centrolobular and focal hepatocellular injury.

Chills and fever. The development of chills and fever in the postoperative period in a patient who develops jaundice will, of course, raise the possibility of biliary tract disease. One has to be cautious, however, in not jumping to conclusions. Chills and fever may be unrelated to the cause of the jaundice and might be caused by pneumonia or urinary tract infection. Chills and fever can occur in patients with cirrhosis. By and large the human liver is not called upon to filter out intestinal bacteria delivered to it through the portal vein to the extent that occurs in a dog's liver. Nevertheless, occasionally bacteria can be demonstrated in the portal vein in man and gram negative septicemia can occur in patients with cirrhosis of the liver. Chills, fever, and jaundice may be due to pylephlebitis secondary to appendicitis, penetrating peptic ulcer, or indeed, not infrequently to a stone in the hepatic or in the common duct. Chill is common in the hepatitis caused by leptospiral organisms. However, chill is most unusual in the common "garden variety" of viral hepatitis. Acute fulminating viral hepatitis with massive hepatocellular necrosis may be associated with chills. If one is operated upon during the incubation period of epidemic viral hepatitis or one has acquired serum hepatitis through the various diagnostic procedures performed weeks or months prior to operation, clinical jaundice may be precipitated by the stress of

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operation. Infectious hepatitis may be transmitted through blood or plasma transfusions. It has a relatively short incubation period, and a patient who received blood products a few weeks prior to operation may be developing with hepatitis in the postoperative period. It is noteworthy that some blood fractions appear to be free of the hepatitis virus, such as, albumin and gamma globulin. However, antihemophilic globulin and thrombin can transmit the disease. The incidence of jaundice following plasma transfusions depends on the size of plasma pool, varying from 12.2% for large pools to 1.5% for small pools. The storage of pooled plasma at room temperature for 6 months probably inactivates the infective agent and will not produce hepatitis.

Right upper quadrant pain. Pain in the right upper quadrant, coliky or otherwise, is usually attributed to gallbladder or disease of the biliary tract. This kind of pain at times may be produced also by hepatocellular disease. It is common in a patient with hepatoma and can also be found in patients with post-necrotic cirrhosis or in patients who develop acute hepatic congestion or acute infiltration of the liver.

Skin changes. Several cutaneous manifestations may help to evaluate the cause in the patient with jaundice. Palmar erythema is usually associated with hepatocellular injury, but it may be familial and unrelated to the jaundice. Spider angiomas are usually associated with hepatocellular injury in a nonpregnant patient. However, it may occur in the absence of liver disease, and is seen in patients with rheumatoid arthritis. The combination of spiders and jaundice should be used as strong evidence for parenchymal disease. Urticaria is usually associated with acute hepatocellular injury and is seen in viral hepatitis. Cutaneous xanthomatosis will suggest biliary cirrhosis or extra or intrahepatic obstructive jaundice. Pigmentation of the skin due to melanin suggests cirrhosis. It is noteworthy that the skin pigmentation in hemochromotosis is also due to this same pigment which is found in uncomplicated cirrhosis. Scratch marks on the jaundiced skin used to be attributed exclusively to extrahepatic obstruction. However, itching may be absent in about 25% of the cases with "surgical" jaundice and it does occur in patients with hepatitis or cirrhosis. Itching is often associated with intrahepatic cholestasis. White lines across the fingernails are associated with malnutrition, hypoalbuminemia, chronic liver disease and are also seen in chronic arsenic poisoning.

Spleen. This is often palpable in patients with cirrhosis, with infectious mononucleosis, and is enlarged in over 15% of the patients with viral hepatitis. As a rule a palpable spleen is a powerful argument against extrahepatic obstruction as the cause of jaundice. A notable but rare exception is Hodgkin's disease with large periportal nodes obstructing the common duct, or a rare case of splenic vein thrombosis secondary to carcinoma of the pancreas.

Liver. Palpation of the liver may give important information regarding the nature of the underlying disease. A palpable gallbladder will suggest malignant biliary tract obstruction. Marked enlargement of the liver is against viral hepatitis. Usually it is enlarged 3 to 5 cm. below the costal margin, or it may not even be palpable. The edge is usually sharp as it is in most acute liver enlargements, and is usually tender. Massive enlargement of the liver with a rounded edge is usually associated with chronic liver disease, either congestion, infiltration, or intrinsic metabolic injuries. The consistency of the liver is stony hard when invaded by primary or secondary carcinoma. However, one has to exercise caution because knobby irregularities on the very firm liver surface may be felt not only in carcinomatous infiltrations, but also in post-necrotic cirrhosis. Recent marked weight loss can produce lumpiness in the anterior abdominal wall which may be misinterpreted as nodules on the liver surface. The absence of the stony hard feel of the liver, on the other hand, does not rule out carcinoma, because the usual desmoplastic reaction to carcinoma may be minimal and the malignant nodules may undergo necrosis losing their hard consistency.

Friction rub over the liver. A friction rub in the right upper quadrant should always raise the possibility of hepatic cancer. It may be heard over the liver in some patients with chronic ascites. Another important consideration is tuberculous peritonitis. A friction rub, however, also may be heard over the liver at times in the presence of suppurative

cholangitis, and liver abscess due to either pyogenic bacteria or to *E. histolytica*. The friction rub may also be heard following infarction of the liver due to periarteritis nodosa.

Ulcerations and pigmentation over the pretibial area should raise a question of hemoglobinopathy and hemolytic jaundice.

Laboratory Tests.

Let us examine now a few of the most commonly used laboratory tests.

Bromsulphalein test. Hemorrhage and/or shock preoperatively may result in marked BSP. retention in the absence of intrinsic liver disease. The absence of abnormal BSP. retention in a patient bleeding from the gastrointestinal tract is strong evidence against the diagnosis of cirrhosis. Significant BSP. retention, however, prior to or soon after operation in a bleeding patient does not constitute a *prima facie* evidence for intrinsic liver disease. Healthy young individuals following hemorrhage can have BSP. retention up to 40 to 42%, 45 minutes after the administration of 5 mg. per kg. of the compound. Following operation and adequate transfusions, the BSP. excretion, as a rule, will return to normal within 7 to 10 days. BSP. retention in the postoperative period is related to the extent of blood loss and the requirement for blood replacement. It is also related to the nature of the trauma producing blood loss. Trauma to the extremity produces less BSP. retention with the same amount of blood loss than intra-abdominal trauma. Alterations of splanchnic blood flow for any reason markedly affects the hepatic clearance of BSP. The measurement of total BSP. retention in a jaundiced patient, as it is routinely performed does not differentiate hepatocellular injury from obstruction. The determination of both conjugated and free BSP. retained in the plasma 45 minutes after the injection of 5 mg. per kg. of the compound seems helpful in this respect. In obstructive jaundice conjugation of BSP. is impaired less than excretion. Therefore, a higher proportion of the retained BSP. is conjugated in obstructive jaundice than in hepatitis. If only a small percentage of the retained BSP. is conjugated, it indicates severe impairment of the conjugating as well as the excretory mechanisms, and is suggestive of hepatocellular rather than obstructive jaundice.[2]

Prothrombin time. In a patient who receives massive blood transfusions, the one-stage prothrombin time may become prolonged. This prolongation occurs shortly after the transfusions. It is due largely to a deficiency of Factor V, a labile accelerating factor. Administration of vitamin K does not influence this early prolongation of the prothrombin time following transfusions and operation. Within 1 to 3 days there is a return of the prothrombin time to normal. In some individuals there may be a secondary fall toward the end of the first postoperative week.[1]

Cephalin flocculation. (CCF.) One must use caution in interpreting the result of this test in a patient who received blood or plasma transfusions. The CCF. is likely to be normal in the patient who is in shock. However, after transfusions, it frequently will become positive.[1] One will observe that bank blood, which has been kept on the shelf for some time, will give a positive CCF. test. A CCF. which is 2+ immediately after operation may become 3+ or 4+ in 24 to 48 hours after the patient has returned from the operating room. As a rule, this abnormal cephalin flocculation will revert to normal by the end of the first postoperative week, and will remain normal in the absence of intrinsic liver disease. However, if the patient requires additional transfusions, there may be another transient rise of the CCF. While the CCF. may become transiently positive in the postoperative period in patients who received transfusions, the thymol turbidity test (TT.), as a rule, will remain normal.

It may be of interest at this time to review the mechanisms of the CCF. and TT. tests. The CCF. depends upon the balance of the stabilizing and flocculating forces in the serum. The stabilizing forces consist mainly of the labile lipid-rich constituents of electrophoretically derived albumin and alpha-1 globulin fractions. Because of the instability of these stabilizing factors, normal serum may become positive after prolonged standing in the conventional refrigerator. The stabilizing factors decrease in the serum within 48 hours after acute parenchymal liver injury and remain low until hepatic healing is well established. Factors in the serum responsible for producing flocculation are the gamma globulins.

The positive CCF. usually reflects morphologically acute necrotizing lesions in the hepatic parenchyma, especially the kind that incite mesenchymal irritation. The test does not indicate the extent of hepatic damage, nor does it become positive in all forms of hepatocellular injury. The CCF. reaction is not a true liver function test, though it is positive in 90% of cases with hepatitis, and 70% of cases of cirrhosis with cell necrosis, and 40% of cases of cirrhosis without cellular necrosis on the liver biopsy specimen. It is also positive in many of the collagen diseases, in some cases of hemolytic jaundice, and in acute leukemias. It is usually negative in the presence of obstructive jaundice though it does not differentiate extrahepatic from intrahepatic cholestasis.

Thymol turbidity test. (TT.) This test also depends on a balance of various fractions of the serum. The stabilizing component is serum albumin. In this test the stabilizing factor does not play as important a role as it does in a CCF. The turbidity producing components are, in addition to the gamma globulins, the beta globulins, lipoproteins, and serum lipids. Because of the great turbidity producing property of lipids, TT. was used for a so-called thymol turbidity tolerance test following a standard fat meal to measure fat absorption. It is essential that these procedures be performed on a fasting patient. The extraction of lipids with ethyl ether will prevent such turbidity. In acute hepatitis the TT. is closely related to an alteration of serum lipids, while in chronic hepatitis the relationship between TT. and gamma globulin is much closer. In infectious hepatitis the TT. becomes positive later than the CCF. and remains abnormal longer. In fatty portal cirrhosis the CCF. is more likely to be abnormal than the TT. On the other hand, in postnecrotic cirrhosis the TT. is more likely to be abnormal than the CCF., though in both conditions both tests usually become positive.

Thymol turbidity is not a specific liver function test either. It is likely to be elevated in many other diseases associated with high levels of gamma globulin. There is one remarkable exception, however, namely, multiple myeloma. Recently we studied a patient who had a very high TT. and an M-protein was demonstrated on paper electrophoresis. Despite a thorough search, no morphologic or other evidence was discovered to support a diagnosis of multiple myeloma, plasmacytoma or parenchymal liver disease.

From a clinical point of view, one of the greatest advantages of the CCF. and thymol turbidity tests is that they are negative in obstructive jaundice. In examining the forces which make a positive flocculation and turbidity test, it is interesting to note that the very nonspecificity of the tests makes them so very useful clinically. It is clear by now that changes in concentration of gamma globulin alone is not the main determining factor for the positivity of the flocculation and turbidity tests. There are three main factors which account for variations in these tests:

1. Serum albumin. Increasing concentration of serum albumin will convert an originally positive to a negative test *in vitro,* and there is a stoichiometric relationship between the amount of albumin added and the increasing negativity of the test. It is of great interest, however, that the same amount of albumin derived from a patient with infectious hepatitis has much less stabilizing action than albumin which is isolated from a normal individual. Serum albumin obtained from patients with cirrhosis has even a lesser stabilizing effect than serum albumin obtained from patients suffering from infectious hepatitis. The effect of these albumins on thymol turbidity is less marked than their effect on the CCF. test.

2. The second factor responsible for the production of turbidity and flocculation is gamma globulin. The addition of increasing amounts of gamma globulin to originally normal serum will produce increasing positivity of the flocculation test, and increasing turbidity in the thymol test. It is of interest that gamma globulin obtained from patients with hepatitis or cirrhosis will have a much more potent flocculation and turbidity producing ability than gamma globulin obtained from normal individuals. Thus, in the CCF. and TT. tests, the qualitative as well as the quantitative changes in serum albumin and gamma globulin play a very fundamental role.

3. There is a very important third factor which makes these tests even more helpful in the differentiation of primary parenchymal disease versus obstructive biliary disease. There is an unknown factor in the serum of

patients with biliary obstruction which has a depressive effect on the turbidity and flocculation reactions. While the addition of normal human gamma globulin to normal serum will produce increasing positivity of CCF. and TT. tests, the addition of the same amounts of gamma globulin to the same amount of serum obtained from a patient with extrahepatic obstruction may not produce "abnormal" CCF. and the increase of the TT. is smaller. Also, if, to a constant mixture of serum and gamma globulin, increasing amounts of albumin are added, it is clearly demonstrable that much less albumin is needed to produce a negative CCF. and a normal TT. test, if the serum in the mixture is from a patient with obstructive jaundice than if it is from a normal individual. Thus, albumin has a more potent stabilizing effect in the presence of serum of obstructive jaundice than in normal serum, and gamma globulin is much less effective in producing flocculation and turbidity in the presence of obstructive jaundice serum as compared to normal serum.[3]

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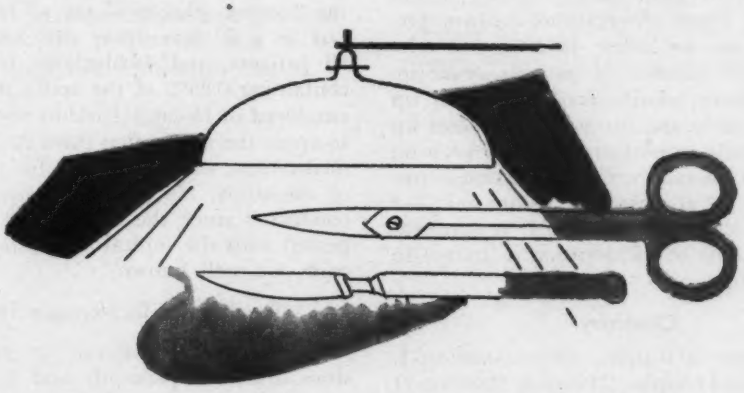

Dichlorisone: A "Topical" Steroid

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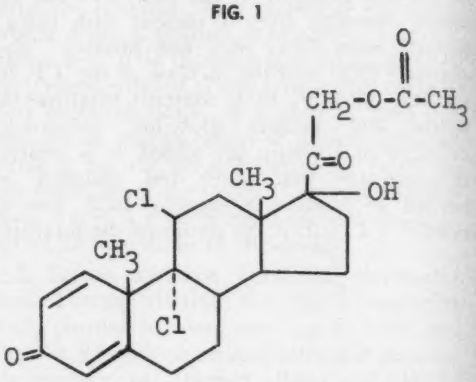
IN PREVIOUS PUBLICATIONS it was stated that to possess anti-inflammatory properties, steroids had to have oxygen at the 11-position of the steroid molecule.[1,2] A study conducted at the University of Maryland during the past few months on a new compound, dichlorisone, indicates that this theory is no longer tenable with regard to topically applied corticoids. In dichlorisone, a chlorine atom has been substituted for oxygen at the 11-position; the resulting compound was proved to have anti-inflammatory effects upon topical application. On systemic administration of this steroid, at high dosage levels, it has proved to have minimal action compared to other steroids. In fact, when dichlorisone was administered in an oral dosage of 80 mg. per day to 2 patients with atopic dermatitis, who had previously been stabilized on a maintenance dose of 2 mg. of dexamethasone per day, lesions in both cases relapsed within seven days. These observations confirm previous findings by other investigators who treated larger numbers of patients. Some investigators have administered oral doses up to 200 mg. daily and intramuscular doses up to 80 mg. daily to patients who had been on maintenance therapy with other systemic corticosteroids. In all instances lesions relapsed within a short period of time. It is apparent that the activity of dichlorisone is limited to topical therapy.

Chemistry

Dichlorisone is 9-alpha, 11-beta-dichloro-1, 4-pregnadiene-17 alpha, 21-diol-3, 20-dione-21 acetate, and has the structural formula as shown in figure 1.

FIG. 1



Materials and Methods

Dichlorisone was used, in its various forms, to treat a total of 77 patients with a variety of cutaneous lesions. Patients ranged in age from 3 to 70 years. Dichlorisone cream, containing 0.25% of the active ingredient, was used in 32 cases; dichlorisone aerosol, containing 8.34 mg. in a 50 Gm. spray can, and dichlorisone with neomycin aerosol, containing 8.34 mg. plus 16.67 mg. of neomycin sulfate in a 50 Gm. spray can, were given to 30 patients, and dichlorisone foam aerosol, containing 0.25% of the active material, was employed in 15 cases. Patients were instructed to apply the medication twice daily. No other medications were prescribed for the duration of the study. No placebo comparisons were conducted since the results that can be expected with the topical applications of corticoids are well known.

Results with Dichlorisone Therapy

Results were considered "excellent" if lesions involuted promptly and itching disappeared; "good" if a satisfactory but less rapid response occurred, and "poor" if the condition failed to respond appreciably (Table 1).

As table 1 shows, dichlorisone proved to be an efficient topical corticoid in the treatment of various conditions in which it was employed. Dyshidrosis failed to respond to local treatment with this compound.

Summary and Conclusions

1. Dichlorisone, a new topical steroid in which a chlorine atom has been substituted

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Dichlorisone for this study was furnished, as Diloderm, through the courtesy of G. Kenneth Hawkins, M.D., Department of Clinical Research, Schering Corporation, Bloomfield, N. J.

TABLE 1

Cream

Condition	Number of Patients	Age Range	Duration of Therapy	Therapeutic Results Excellent	Good	Poor	Irritation
Neurodermatitis	8	21-70	2 wks.-2 mos. (Average 1 mo.)	2	6	0	None
Contact dermatitis	6	18-52	2 wks.-1 mo. (Average 1 mo.)	3	3	0	None
Atopic dermatitis	4	3-35	1-2 mos. (Average 6 wks.)	1	3	0	None
Atopic eczema	1	14	2 mos.	0	1	0	None
Seborrheic dermatitis	3	30-61	6 wks.-2 mos. (Average 2 mos.)	2	1	0	None
Pruritus ani and vulvae	8	28-60	1 mo.-6 wks. (Average 5 wks.)	0	8	0	None
Dyshidrosis	2	23-31	1 mo.	0	0	2	None
				8	22	2	

Aerosol and Aerosol with Neomycin

Condition	Number of Patients	Age Range	Duration of Therapy	Therapeutic Results Excellent	Good	Poor	Irritation
Neurodermatitis	12	13-45	1-2 months	9	3	0	None
Atopic dermatitis	18	18-35	1-2 months	11	7	0	None

Foam Aerosol

Condition	Number of Patients	Age Range	Duration of Therapy	Therapeutic Results Excellent	Good	Poor	Irritation
Neurodermatitis	15	12-35	1-2 months	9	6	0	None

for oxygen at the 11-position, was given to 77 patients with a variety of cutaneous lesions.

2. Dichlorisone applied topically produced satisfactory results in neurodermatitis, contact dermatitis, atopic dermatitis, atopic eczema, seborrheic dermatitis and pruritus ani and vulvae; the preparation was of no value in the 2 cases of dyshidrosis treated.

3. Dichlorisone applied topically produced no primary irritation or allergic reaction in the 77 patients studied.

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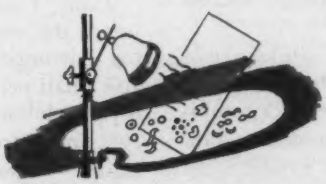

Nonpenetrating Wounds of the Abdomen: A Report of 47 Cases With Review of the Literature

HENRY D. H. OLINDE, M.D.,† *Shreveport, La.*

With the worship of the gods of horsepower and speed, every doctor, whether at the crossroads or in the metropolis, may be faced at any moment by the problems considered in this paper.

NONPENETRATING WOUNDS OF THE ABDOMEN as defined in this paper are injuries to the abdominal wall, viscera (both intraperitoneal and extraperitoneal), or retroperitoneal structures secondary to nonlacerating trauma to the abdominal wall, including the lumbar region and the pelvis. The injuries included in this group are among the most challenging problems that confront the physician. The management of these wounds is doubly perilous because of the difficulty in diagnosis and their acute or subacute nature that predicates early treatment if life is to be spared.

Though the management of nonpenetrating abdominal wounds is complex, the management of penetrating abdominal wounds is less precarious, since almost without exception exploration is necessary. This simplifies the diagnosis of intra-abdominal injury, a problem which has been in the past and is even now the principal reason for the higher mortality rate in nonpenetrating abdominal wounds (10.4 to 31%)[1-7] as compared to the mortality in penetrating abdominal wounds (7.7 to 12 per cent).[2,3] That there has been a decrease in mortality in nonpenetrating wounds over the past 20 to 30 years is illustrated in Allen's reported mortality rate, in 1931, of over 44 per cent.

Death in nonpenetrating abdominal wounds in the past has been due chiefly to shock, hemorrhage, and infection or a combination of these. The present mortality rate can undoubtedly be reduced by earlier diagnosis and treatment, vigorous treatment of shock, more adequate supportive measures, the use of antibiotics when indicated, and continuing refinements in anesthetic and surgical methods and technics.

Present Series

This present series consists of 47 patients admitted to the Confederate Memorial Medical Center from January 1, 1951, through December 31, 1956, with injuries generally classified as nonpenetrating wounds of the abdomen as defined earlier. The many patients not admitted to the hospital or discharged on admission or after an overnight observation period without a definite diagnosis are not included in this study.

Table 1 lists the causes of nonpenetrating abdominal trauma in the present series as well as those reported by others for comparison. The chief causes of such injuries are auto collisions and auto-pedestrian accidents.[2-4,7-10]

Table 2 lists the frequency of various injuries among the 56 sustained by the 47 patients. Table 3 classifies these injuries as to whether they were of the abdominal wall or intra-abdominal in nature, and if the latter, the organ systems and specific organs involved.

Table 4 shows the system and organ injured, the type of injury, and the mortality for that organ and injury in this series. Five and a half per cent of the injuries were limited to the abdominal wall; Cottrell[8] reported a 10% incidence of similar injuries. Allen and Curry[2] found injury to intra-abdominal viscera in 53% of all nonpenetrating abdominal wounds. Obviously, the incidence of intra-abdominal injury depends upon the inclusiveness of the individual series, the defi-

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TABLE 1

	Helsper 1953[1] (52 cases)	*Allen and Curry 1957[2] (23 cases)*	*Cottrell 1954[8] (No series)*	*Welch and Giddings 1950[9] (170 cases)*	*Present Series (47 cases)*
Auto-pedestrian	50%		49.6%	20%	4.3%
Auto-collision	9.6%	53%			48.9%
Falls	21.2%	8.3%	11%	40%	12.8%
Brawls	3.8%				4.3%
Train-street			11.5%		4.3%
Struck by vehicles*		13.5%			6.4%
Motorcycle accidents		1.3%			2.1%
Bicycle accidents		1.7%			
Football		1.3%			
Children at play		3.9%			
Other		3.4%			6.4%

*Other than autos and trains.

nition of "intra-abdominal injury," and its diagnosis.

Determinants of Injury

Several factors determine the extent of injury by a given trauma. The degree is related to the speed with which the force of injury is applied, the direction of the force, and the size of the offending object.[11] The thickness and character of the abdominal wall and its tone at the instant of injury no doubt are important factors in determining the extent of injury. The nature of the organ and the character of the offending object are also important. Hollow viscera are more apt to rupture by a blow from a sharp object and solid viscera by a broad, crushing object.[10] The consistency and unit mass of the organ also influence its susceptibility to injury, the firmer and denser the organ, the greater its susceptibility to injury, other factors being equal. Thus in the present series, 64.2% of all intra-abdominal injuries were to solid organs. By the same token, the fullness of hollow viscera—especially the bladder and intestines—render these organs more prone to injury. Pre-existing lesions (diverticula, ulcers, etc.) likewise make organs more vulnerable to injury according to Bradley and Cook,[11] although Penberthy and Reiners[10] state that rupture of a hollow viscus at the site of pre-existing disease is extremely rare.

The location of organs in relation to solid structures such as the vertebral column, bony pelvis, and iliopsoas muscles is significant, the likelihood of injury increases if the organ is in contact with one of these structures or in a location that allows its compression against one of them.[10] Mobility of an organ is another determinant of injury, the fixed organs (liver, spleen, kidneys, bladder and certain parts of the intestinal tract) being more susceptible to injury than are freely movable ones. Cottrell[8] found that 70% of intra-abdominal injuries involved fixed organs. In

TABLE 2

NONPENETRATING ABDOMEN WOUNDS
(47 PATIENTS)

Rupture spleen	12
Rupture liver	9
Rupture kidney	6
Hematuria, unknown origin	6
Contusion kidney	5
Rupture urinary bladder	4
Rupture diaphragm	3
Contusion abdominal wall	2
Contusion urinary bladder	2
Rupture jejunum	2
Abrasion abdominal wall with ileus	1
Rupture pancreas	1
Hematoma liver (??)	1
Rupture mesentery of ileum	1
Rupture middle colic vein	1
Different diagnoses: 15 Total injuries:	56

TABLE 3

A. External or abdominal wall injury—3
   1. Contusions abdominal wall—2
   2. Abrasions abdominal wall—1
B. Internal or intra-abdominal injury—53
   1. GU system—23
      a. Kidney—11
      b. Bladder—6
      c. Hematuria, unknown origin—6
   2. GI system, its mesentery, and blood supply—15
      a. Liver—10
      b. Pancreas—1
      c. Mesentery of ileum—1
      d. Jejunum—2
      e. Middle colic vein—1
   3. Spleen—12
   4. Diaphragm—3

TABLE 4

A. External or abdominal wall injury		
1. Contusion abdominal wall	2	(no deaths)
2. Abrasions abdominal wall	1	(no deaths)
B. Internal or intra-abdominal injury		
1. GU system		
a. Kidney		
1) Contusion of kidney	5	(no deaths)
2) Rupture of kidney	6	(4 deaths*)
b. Urinary bladder		
1) Contusion of bladder	2	(no deaths)
2) Rupture of bladder	4	(3 deaths**)
c. Hematuria, unknown origin	6	(1 death***)
2. GI system, its mesentery and blood supply		
a. Liver		
1) Rupture of liver	9	(3 deaths****)
2) Hematoma liver (??)	1	(no deaths)
b. Pancreas		
1 case rupture pancreas associated with rupture jejunum		(no deaths)
c. Mesentery of ileum		
1 case. Mesentery ruptured in 2 places. Associated with rupture of spleen.		(no deaths)
d. Jejunum		
2 cases rupture: one associated with rupture of liver, one associated with rupture of pancreas		(1 death*****)
e. Middle colic vein		
1 case rupture of middle colic vein associated with laceration of kidney.		(1 death)
3. Spleen		
12 cases. 2 associated with rupture of diaphragm, 1 associated with rupture of kidney, 1 associated with rupture of mesentery of upper ileum. 2 deaths, 17% mortality. Both deaths associated with other severe injuries.		
4. Diaphragm		
3 cases. Two involving left leaf of diaphragm. 2 associated with rupture of spleen.		(no deaths)

*3 associated with other severe injury.
**3 associated with other severe injury.
***Associated with rupture of liver.
****2 associated with other severe injury.
*****Associated with rupture of liver.

my series, 46 of the 53 intra-abdominal injuries involved fixed organs.

Emergency Treatment

The immediate management in nonpenetrating wounds of the abdomen consists of: (1) treatment of shock if present; (2) establishment of adequate ventilation (by tracheostomy if necessary); and (3) the diagnosis and evaluation of injuries with treatment of the most serious injuries and as adequate treatment of secondary injuries as conditions permit.

That there is a direct relation between shock and the mortality rate has been pointed out by several writers.[2,3,5,6] In the present series, the mortality rate among patients admitted in shock was 41.2% as compared to a mortality rate of 13.3% for those not in shock. Whether or not the high mortality rate in these patients in shock is due to the shock *per se* or to associated injuries that produce shock is not known, but probably both factors are inconstantly responsible, depending upon the individual case. Be this as it may, shock must be treated immediately. Plasma expanders and/or normal saline should be administered intravenously along with vasopressor substances until blood is available for administration. The amount of blood given and its rate of administration depend, of course, upon the response. When shock is present analgesics should be given intravenously if used since absorption by the intramuscular route is unpredictable. They must be used judiciously, since they may mask symptoms and signs of intra-abdominal or intrathoracic disturbances. Narcotics should never be used if there is a question of intracranial injury. Other supportive measures in the treatment of shock include maintaining body warmth and increasing cerebral blood

flow by using the Trendelenburg position. This also allows dependent drainage of oral and bronchial secretions and vomitus should vomiting occur. In certain cases associated with severe hemorrhage, the patient must be operated upon even though shock is present and despite the very high mortality rate under such circumstances.

In the event of paradoxical respiration ("flail chest"), the unstable portion of the chest wall must be stabilized by pressure with sandbags or by mechanical devices such as towel clips or metal screws and traction devices. Open sucking wounds must, of course, be closed either temporarily with a suitable dressing or definitively by repair of the laceration. If a hemothorax is present, it is wise in those who must be operated upon to insert a #28-32 French catheter by closed thoracotomy through the 7th or 8th interspace just anterior to the posterior axillary line and to connect this to a chest suction apparatus. If pneumothorax is present, it is prudent, in cases to be operated upon, to place a catheter by closed thoracotomy through the 2nd interspace anteriorly, several centimeters lateral to the sternal edge being careful to avoid the internal mammary vessels. If operation is not contemplated, pneumothorax and hemothorax may be managed by close observation, with thoracentesis and aspiration as required or by closed thoracotomy tube drainage.

Tracheostomy may be indicated, especially if there is associated intracranial injury. The experience at this institution has led to the performance of tracheostomy at the first or slightest indication. By eliminating the pharyngeal "dead space," available pulmonary air is increased by about 200 cc. with each inspiration. Tracheostomy also permits maintenance of a relatively dry airway by the aspiration of secretions and thus decreases the danger of aspiration of pharyngeal secretions and vomitus. Anesthesia is readily administered via the tracheostomy, and bronchoscopy, if indicated, is simply performed through the tracheostomy within several days after its establishment or sooner if necessary.

Diagnosis of intra-abdominal injury may be extremely difficult and will be discussed further in regard to the specific organ injured. Several steps in diagnosis are more or less standard, however. At the time the first intravenous infusion is started, blood is drawn for typing and cross-matching, hematocrit and hemoglobin determinations, and white cell and differential counts. It must be remembered that hemoglobin and hematocrit values often do not reflect the true extent of hemorrhage until 8 to 12 hours later and may therefore be misleading. Serum amylase examination should also be requested at this time if the decision to operate has not yet been made. Urinalysis is essential, and an indwelling catheter should be left in place if operation is contemplated, or if injury to the urinary tract is suspected.

A Levin tube should be inserted in all cases of possible intra-abdominal injury for three reasons. If there is bloody return from the tube, gastric or duodenal injury should be strongly suspected. Second, the Levin tube may be prophylactic or therapeutic in acute gastric dilatation which is a frequent complication, especially when associated with "blast" or chest wounds. Third, gastric intubation permits evacuation of the stomach preoperatively and maintenance of decompression postoperatively.

Futher diagnostic steps should include radiographs of the abdomen in the recumbent and erect positions as well as posterior-anterior chest films in the erect position. If conditions do not permit standing, views of the abdomen should be made with the patient lying on his left side (right side up), and posterior-anterior views of the chest in the prone position. Both leaves of the diaphragm should be included on these films.

General Indications for Operation

The indications for operation vary greatly. As previously stated, emergency surgical treatment may be imperative in the treatment of shock. Free intra-abdominal air beneath the diaphragm or retroperitoneally, in the absence of injury to the chest with mediastinal emphysema, are likewise definite indications for surgery. Rupture of any viscus generally dictates surgical intervention and will be discussed later in reference to the individual organ involved.

In the majority of cases, however, management is not so clearly defined. In these cases the signs of intra-abdominal injury are often

questionable: abdominal pain and tenderness, rebound tenderness, hypoactive or absence of bowel sounds, and occasionally distension. To further becloud the picture, unconsciousness, shock syndrome, or apprehensiveness are common, and it is therefore difficult to evaluate the nature and extent of injury. Diagnostic efforts must be especially detailed and complete so early treatment can be instituted as there is a direct relationship between the mortality rate and the time interval from injury to operation.[2,6,10]

Several diagnostic methods are helpful. Bloody return from the Levin tube is a strong indication of rupture of the esophagus, stomach, or duodenum and, with rare exception, predicates surgical exploration. Presence of intra-abdominal fluid or blood is, of course, an indication for operation, but it is usually impossible by the clinical sign of shifting dullness to detect intra-abdominal fluid until a large volume is present. Aspiration with a blunt needle through the anterior abdominal wall in the male or the cul-de-sac in the female, when correctly performed and interpreted, is a very helpful procedure in the early diagnosis of free intraperitoneal fluid or blood. This test is valuable when there is indecision concerning immediate surgical exploration on the one hand and further observation on the other. Aspiration of blood, bile, urine, or gastric or intestinal content from the peritoneal cavity demands immediate exploration. Failure to obtain fluid or aspirate, however, has no significance and does not mean that there is no intra-abdominal injury. If no aspirate is obtained, the test should be disregarded and the decision of exploration or observation left to the judgment of the physician. I have used abdominal aspiration on many occasions and have found it very valuable and extremely safe, despite having punctured the small intestine inadvertently on several occasions. It has been my experience that even dilated small bowel seals the small perforation without untoward effects. This seems tenable in view of the report of Willis'[12] successful conservative treatment of penetrating shotgun pellet wounds of the abdomen.

X-ray evidence of free fluid in the peritoneal cavity is indicated by inability to identify the iliopsoas border or by "ground-glass density" appearance and should influence the physician toward surgical exploration, although x-ray findings are frequently equivocal in this regard.

If there is no indication of definite intra-abdominal injury, the physician's judgment allowing, careful observation is permissible. Blood pressure, pulse, respiration, and temperature must then be checked and recorded frequently and regularly, and the patient must be re-examined at frequent intervals, preferably by the same observer. Falling blood pressure, increasing or varying pulse rate, increasing respiratory rate with shallow respirations, and varying temperature are strongly suggestive of intra-abdominal injury when there is no other apparent cause for fever. These signs should be considered along with changing physical findings and repeated laboratory tests and x-ray examinations when indicated, in evaluating the patient's condition and progress. Exploration should be done at its first definite indication.

In nonpenetrating abdominal wounds paralytic ileus is a frequent and confusing sign. Paralytic ileus in general surgery is usually a sign of peritoneal inflammation or irritation or is, less commonly, secondary to acute pulmonary disease or pleural irritation. In nonpenetrating abdominal wounds paralytic ileus may indicate peritoneal inflammation or irritation, but this is not always the case; ileus is frequently produced by blunt shock to the celiac plexus or by injuries to the back and thorax, a syndrome known as "peritonism."[5] In "peritonism" the ileus disappears after adequate treatment of the primary shock which it accompanies. Ileus may also result from retroperitoneal hemorrhage. Still another type of ileus, the exact nature of which is obscure but which probably represents minor injury to the gastrointestinal tract, occurs in nonpenetrating abdominal injuries. Here ileus may persist for three days or longer despite the adequate treatment of shock, but eventually it resolves spontaneously. A point which may be of help in determining the etiology of ileus when pain is present is the character of the pain itself, peritoneal pain due to spillage being exaggerated by body movement,[6] whereas pain

in ileus from other causes is not usually affected by movement.

Expectant treatment must be closely supervised and evaluated. Prolonged observation can be disastrous. In the face of questionable intra-abdominal injury the safest course is usually exploration, either immediately or after a short course of observation.[4,10]

Anesthesia

The selection of anesthesia varies with the individual case. Generally speaking, nitrous oxide, ether and oxygen administered by endotracheal tube are suitable and safe. Endotracheal intubation allows adequate ventilation, prevents aspiration of vomitus, and is preferable when there are associated chest injuries. A relaxant, such as a curare derivative or a curare-like drug, is often very helpful and is safe, especially when endotracheal anesthesia is used.

In a rare case spinal anesthesia may be used to advantage. At this institution spinal anesthesia is usually not employed for emergency exploration in nonpenetrating abdominal wounds. At one time spinal anesthesia enjoyed widespread use,[13] but since the advent of muscle relaxants and endotracheal anesthesia it has little place in nonpenetrating wounds of the abdomen.[7]

Paxtius[6] suggests further investigation of hypothermic anesthesia in severe injuries. This seems plausible, especially in face of the recent development of methods for rapid cooling. We have had no experience with hypothermic anesthesia in these cases.

Postoperative Management

Postoperative management in nonpenetrating abdominal wounds is essentially the same as that in elective surgical cases with modifications depending upon the organ injured and associated injuries. The basic postoperative management includes: (1) maintenance of adequate ventilation (by tracheostomy or bronchoscopy if indicated); (2) restoration of blood volume; (3) maintenance of electrolytes and fluids with measurement of intake and output; (4) early and adequate use of antibiotics; (5) special care depending on the specific injury; (6) early ambulation when possible; (7) oral alimentation as soon as feasible; and (8) general supportive measures.

Details of postoperative management will not be discussed other than to mention the value of the determination of blood volume in indicated cases. As previously stated, hemoglobin and hematocrit values may not be accurate indications of hemorrhage and therefore of blood volume for 8 to 12 hours after a major loss of blood. I have seen one instance of persistant hypotension for 36 hours after blood loss in which hemoglobin and hematocrit values were normal, and in which correction of the blood deficit as determined by blood volume made the patient normotensive and generally improved her condition markedly. Determination of blood volume is thus extremely helpful in the therapy of blood replacement after the control of hemorrhage.

Urinary System

In nonpenetrating abdominal wounds the urinary is the most frequently involved of all systems,[1-3,5,8,14] true in this series also. Demonstrable ureteral injury is extremely rare; injury is limited to the kidneys, bladder, and urethra or consisting of unexplained hematuria.

It has been reported that renal injury occurs frequently with fractured ribs or fractures of the transverse processes of the vertebrae.[3,5] In the present series, 3 of the 11 renal injuries were associated with fractures of the ipsilateral ribs or transverse vertebral processes. It has also been reported that the right kidney is injured more frequently than the left; in the present series the left kidney was injured in 6 cases while the right was injured in 4, the injury being bilateral in one case.

Renal injuries consist of laceration and contusion. Laceration may range from mild to severe, severe laceration being frequently referred to as fracture of the kidney. Renal injury usually presents itself as abdominal or back pain and tenderness, associated with hematuria, or as a picture of overt shock. Occasionally the injury is missed initially and the patient remains relatively asymptomatic until infection and sepsis occur. Ruscoe[4] reported hypertension as a prominent feature in 3 cases of renal injury in children who sustained nonpenetrating abdominal wounds

in which nephrectomy resulted in return to normotension.

In cases of suspected renal injury, intravenous pyelography should be done as soon as possible to determine whether there is renal injury and, if so, which kidney is involved. If there is extracapsular extravasation of radiopaque material, severe renal injury is present which frequently requires nephrectomy. If signs of hemorrhage are present and continue, nephrectomy is definitely indicated. In occasional cases, cystoscopy may be of value in determining the side of injury when the intravenous pyelogram is indefinite or unsuccessful.

Nephrectomy in nonpenetrating abdominal wounds is best done by a transperitoneal approach, unless there are definite contraindications to this, so abdominal exploration can be done. Careful exploration must be done prior to nephrectomy since fatality has been reported due to removal of a solitary kidney.[3] The more minor renal injuries (contusions and minor lacerations) without extracapsular extravasation are usually best treated expectantly, unless specific surgical indications are present or occur.

Bladder injury is common and consists of contusion and laceration (rupture). Laceration may be either intraperitoneal or extraperitoneal. Contusion is usually due directly to the primary force of the nonpenetrating wound, while laceration is frequently secondary to other injury from the primary force. Pelvic fracture occurred in from 44.4 to 87.5% of bladder lacerations in reported series.[3,5,8,9] In this series, pelvic fracture occurred in each of the 4 instances of bladder laceration.

Bladder injury is usually asymptomatic initially except for symptoms due to the primary trauma or to other injuries secondary to the trauma, but should be suspected whenever pubic fracture or hematuria is present. Diagnosis of bladder laceration is made by inserting a urethral catheter and testing the integrity of the bladder. A measured volume (200 to 250 cc.) of sterile saline is injected through the catheter into the bladder and the catheter is clamped for several minutes then allowed to drain out, the volume of the return being measured. If this return is less than the injected volume, laceration of the bladder is present. The absence of blood or red cells in the urine does not rule out bladder injury, nor does their presence prove bladder laceration, since blood or red cells may indicate bladder contusion, traumatic catheterization, or other injury of the urinary tract (renal, ureteral, urethral). Laceration of the bladder may also be diagnosed and visualized by injecting radiopaque medium into the bladder through the urethral catheter and making cystogram films. This is seldom necessary for diagnosis, however. In the presence of hematuria without demonstrable laceration or contusion of the bladder, injury to the urethra or proximal urinary tract exists, or there has been traumatic catheterization. This can be determined by cystoscopy if necessary, conditions permitting.

Contusion of the bladder is best treated conservatively, either by observation or by bladder irrigations if necessary. Immediate operation is indicated for laceration. Extraperitoneal lacerations should be closed and the properitoneal space irrigated before the peritoneum is opened. The peritoneum is then opened and any intraperitoneal lacerations or other injuries are repaired. The peritoneum is then closed and suprapubic cystostomy drainage is established along with drainage by an indwelling urethral catheter.

A rather infrequent injury associated with pelvic fractures—especially those with marked displacement of the fracture fragments—is urethral tear with superior dislocation of the prostate gland. In the present series there was no injury of this type. The injury is easily diagnosed, if kept in mind, by rectal examination which discloses the displaced prostate. Inability to pass the urethral catheter further verifies this impression. Treatment is by immediate operation with relocation of the prostate, passage of an urethral indwelling catheter either retrograde or from below, and establishment of drainage by suprapubic cystostomy.

A word should be said about the management of hematuria, as it is frequently the presenting finding and is often difficult or impossible to localize. In this series there were 6 cases of hematuria of unknown etiology in which there was no demonstrable injury to the urinary tract. In cases of hema-

turia without injury of the external genitalia rectal examination should be done first, followed by catheterization and testing for rupture of the bladder. If this is not present, intravenous pyelography is done next. If no renal injury is demonstrable, the patient can usually be managed by conservative symptomatic treatment. If there is further indication for localization of injury, cystoscopy is done to directly visualize the injury or to determine the side of injury, but this procedure is usually not necessary.

Spleen

The spleen is one of the organs most frequently injured in nonpenetrating abdominal wounds. In the present series it was injured more often than any other single organ. Splenic injury has been reported to occur frequently with fractured ribs.[3,10] In the present series, 25% of injuries to the spleen were associated with fractures of the left ribs or transverse vertebral processes on the left side.

Splenic injury consists of laceration, either severe or minor, and contusion with subcapsular hemorrhage. Laceration, especially the more severe degrees, usually presents as an acute surgical emergency with shock and signs of hemorrhage. Pain or tenderness in the left upper abdomen or left costovertebral angle are usually present in the responsive patient. A mass is present only occasionally. Seven of the 12 cases of splenic injury in this series appeared as acute surgical emergencies of shock. Decision regarding management is usually no problem since operation is usually necessary to maintain blood pressure. It must be remembered that hemoglobin and hematocrit values may not be accurate indications of the degree of hemorrhage for 8 to 12 hours or longer after major hemorrhage.

Minor laceration of the spleen and contusion with subcapsular hemorrhage usually do not present as acute surgical emergencies and are difficult to diagnose, because there may be few or no symptoms or signs on admission to the hospital. After several hours or days, nondescript symptoms or signs, such as a vague sensation of heaviness in the left upper abdomen frequently accompanied by a mass or fullness, tenderness or pain in the left upper abdomen or left costovertebral angle region, fainting, weakness, or other symptoms due to anemia appear. X-ray films of the abdomen may reveal a mass in the left upper abdomen with displacement of the splenic flexure of the colon inferiorly and medially. A left-sided pleural effusion is commonly present in longer-standing splenic injuries. Five of the 12 cases in this series fell into the group of less severe injury with delayed onset of signs and symptoms. One of the patients was asymptomatic until 25 days after injury, when he suddenly went into shock and was found to have a ruptured spleen (presumably rupture of a subcapsular hematoma).

In both severe and minor splenic injuries there is usually a history of antecedent trauma, but this is not always the case. The only history of trauma,—elicited only by very careful questioning after operation,—in one case in this series was the holding of a bracing bit against the left upper abdomen while working. Pain referred to the left shoulder (Kehr's sign) is occasionally present. The frequent if not usual occurrence of a white blood cell count ranging from 17,000 to 20,000 has been reported.[1,6] In the differential count polymorphonuclear cells are largely predominant. Puncture of the cul-de-sac or abdominal tap frequently yields blood which does not clot and is a finding extremely valuable in diagnosis of suspected splenic injury.

The treatment of splenic injury is splenectomy. Other methods have been advocated and utilized with varying degrees of success but are fraught with danger and should be avoided.

Liver

Hepatic injury is common, occurring as 7.8 to 36% of injuries to a single organ in previous series.[2,6,8] In the present series this occurred in 21.3% of patients who sustained intra-abdominal injury. Injury of the liver is frequently associated with fractured ribs,[7,10] in 67% of liver injuries in this series. The right lobe of the liver is reportedly injured 5 times as frequently as the left lobe,[7] and the convex surface is reportedly injured one and a half to two times as frequently as the concave surface.[7,14]

Nonpenetrating trauma may produce three types of hepatic injury: (1) laceration (rupture) of the capsule and liver parenchyma,

(2) subcapsular rupture of the parenchyma with intact capsule, and (3) central rupture without injury to the capsule and periphery. All of the injuries in the present series except one consisted of laceration of the capsule and parenchyma. In this one case the patient was kicked in the right side and soon thereafter developed a mass in the hepatic region which moved with respirations and was associated with fever. Exploration was not done and the mass disappeared after several days, the patient becoming asymptomatic. A clinical diagnosis of subcapsular hematoma of the liver was made.

The diagnosis of injury of the liver is often difficult preoperatively; the patient is usually operated on for severe hemorrhage. In the cases in which there is time to formulate a preoperative diagnosis, the history of trauma, fractured ribs in the hepatic region, and right upper abdominal tenderness with signs of peritoneal irritation point to laceration of the liver or bile duct. Abdominal puncture or of the cul-de-sac is valuable if blood or bile is obtained, but is meaningless if no aspirate is obtained. Parenchymal laceration with an intact capsule is initially asymptomatic except for right upper abdominal pain and tenderness and occasionally the presence of a mass. Later the patient usually develops fever.

Management of lacerations of the liver is somewhat controversial, but it is safest to explore in all such cases.[5] If appreciable laceration with leakage is present, primary suture of the liver and its capsule with absorbable mattress sutures and the use of absorbable hemostatic materials to form a matrix for blood clotting are indicated. It is wise to drain for all liver injuries with several rubber drains with the possible exception of very minor, nonleaking lacerations. The mortality rate in hepatic laceration is very high, ranging from 44.4[5] to 87%[8] in other series; it was 30% in the present series.

Parenchymal hepatic injury without capsular laceration is best managed expectantly with supportive symptomatic treatment. The mortality rate in this type injury is usually low, but in cases with central hepatic hemorrhage it may be very high and may be followed after several months by cyst formation.

Injury to the extrahepatic ducts is not common but requires immediate operation with repair of lacerations and drainage of the duct proximal to the site of repair. If anastomosis is necessary, splinting of the anastomotic site with a rubber or polyethylene tube or a long-arm T-tube is generally thought to be of value, though this is somewhat controversial.

Pancreas

Pancreatic injury as a result of nonpenetrating abdominal trauma is not common. In the present series there was only one pancreatic injury, a laceration of the organ associated with rupture of the jejunum at the ligament of Treitz. The most frequent sites of pancreatic injury are the head and that portion lying over the spleen.[10] It has been reported that the pancreas is frequently injured concomittantly with the duodenum.[8]

Pancreatic injury consists of laceration and contusion with traumatic pancreatitis. Pancreatic laceration is frequently associated with retroperitoneal hemorrhage, which manifests itself by back pain, ileus, and occasionally epigastric or generalized abdominal tenderness.[7] Extravasation around the retroperitoneal sympathetic ganglia may produce a blush of the lower extremities and semi-erection of the penis, the latter, according to certain English observers, being indicative of extensive retroperitoneal hemorrhage and being, therefore, a grave prognostic sign.[15] Testicular pain due to irritation of the genitofemoral nerve is another manifestation of retroperitoneal hemorrhage or soiling.

Elevated values for serum amylase are also frequently present in pancreatic injury; therefore these determinations should be requested on admission and every 12 to 24 hours thereafter until the question of pancreatic injury is settled. Aspiration of the abdomen or cul-de-sac may be of help in diagnosing pancreatic injury. Examination for amylase done on the aspirate may be diagnostic, especially in injury of several hours' standing, since the amylase in intra-abdominal pancreatic fluid remains elevated for days after the serum amylase level has returned to normal.

Traumatic pancreatitis is best treated expectantly, although if laparotomy is done it is probably well to place a drain down to the region of pancreatic injury.[8] Laceration of the pancreas should be treated surgically with

suture of the laceration and drainage of the region.

A late complication of pancreatic injury, expecially traumatic pancreatitis, is traumatic cyst formation. It is not uncommon for traumatic cysts of the pancreas to appear as long as one year after injury.

Esophagus, Stomach, and Small Intestine

Injury to the gastrointestinal tract secondary to nonpenetrating abdominal trauma may occur at any point from the esophagus down. Esophageal injury is rare, but injury to the stomach and small intestine is not uncommon. Injury occurs chiefly at or near points of fixation such as the ligament of Treitz and the cecum. As in the case of the urinary bladder, a full hollow viscus makes it more susceptible to injury.

Esophageal injury is rare, but if present the site of injury is at the diaphragmatic hiatus. Symptoms and signs consist of epigastric and substernal pain and tenderness, emphysema of the mediastinum and neck, and subsequent infection and sepsis. Diagnosis is proven by roentgen examination, the use of radiopaque medium or esophagoscopy. Treatment consists of primary repair of the rupture when it is diagnosed within several hours after injury, or of drainage and antibiotic and supportive therapy, with drainage of any subsequent abscesses, if the injury is not suspected until later symptoms of infection occur.

Injury to the stomach or small intestine consists of contusion or laceration. Mild contusion may be asymptomatic or may produce transient abdominal findings and ileus that require no treatment. More severe contusion may be associated with hematoma at the site of injury, followed in several days (during which time the patient may become asymptomatic) by necrosis, perforation, leakage, and peritonitis.[11,13] This "delayed rupture" may occur from 12 hours to 10 days after injury.[13] Because of the clinical improvement of the patient during the asymptomatic period before perforation occurs, this treacherous interval has been referred to as the "period of illusion."[16]

As mentioned earlier, gastric injury is suspected when bloody return is obtained from the Levin tube. Symptoms and signs of peritoneal irritation are usually present. Radiologically there may be air beneath the diaphragm in films taken in the erect or in recumbent positions. Fluoroscopic examination after ingestion of radiopaque medium may reveal perforation of the stomach, but this procedure is seldom necessary or indicated.

Duodenal injury is not uncommon, being frequently associated with pancreatic[8] and colonic injury. The reported mortality rate in duodenal injury has ranged from 20 to 91 per cent.[8] There was no case of duodenal injury in the present series.

Signs of duodenal injury may be confusing as the organ is largely retroperitoneal. A frequent sequence of events in duodenal injury is initial shock and subsequent recovery followed in 24 to 48 hours by peritonitis.[8] Right testicular pain due to irritation of the genitofemoral nerve may be present, as may back pain. Abdominal films may reveal gas in the retroperitoneal region; in the absence of chest injury or esophageal injury, this is diagnostic of perforation of the duodenum or colon.[10] Bloody return from the Levin tube, as noted before, is strongly indicative of esophageal, gastric, or duodenal injury.

The jejunum and ileum are occasionally injured in nonpenetrating abdominal wounds, the most frequent sites of injury being at or near points of fixation such as the ligament of Treitz or the cecal region. The jejunum is reported injured more often than the ileum,[7] injury in either portion occurring most frequently on the antimesenteric border.[10]

Aspiration of the abdomen or cul-de-sac may be helpful in diagnosing gastric injury and intraperitoneal injury of the small bowel, although it is usually of little value unless hemorrhage is present. Diagnosis must usually rest upon clinical signs of peritoneal irritation aided occasionally by x-ray findings of free intra-abdominal air. A short observation period with repeated laboratory tests and recordings of pulse, respiration, and blood pressure are of much value. Surgical exploration, with repair of injury or resection of extensively injured segments, is indicated in all cases of injury to the stomach or small intestine. Reflecting the descending portion of the duodenum medially (Kocher's ma-

neuver) is helpful in exposing the second and proximal third portions of the duodenum. The entire length of the small intestine should be examined at operation, since it has been reported that multiple lacerations occur in 10% of injuries to the small intestine.[8]

Large Intestine

Injury to the large intestine is rather uncommon, occurring about one fourth to a half as frequently as injury to the small intestine.[2,4,6] There was no instance of colon injury in this series. As in the small intestine, injury occurs chiefly at or near points of fixation (hepatic and splenic flexure and sigmoidal attachments) and occurs more frequently when the bowel is full. The frequent association of colonic injury with duodenal injury has been reported.[9] Because of the low position of the sigmoid colon, protected somewhat by the bony pelvis, it is injured less often than the proximal colon. Injury to the rectum is rare.

The nature of injury to the colon is similar to that of the small intestine. Both laceration and contusion with or without necrosis and perforation occur. Perforation of the intraperitoneal colon produces the same symptoms and signs as perforation of the intraperitoneal upper gastrointestinal tract—peritoneal irritation with later bacterial peritonitis, ileus, and distension. Tenesmus is frequently a major symptom in rupture of the sigmoid colon or upper rectum.[6] Rectal examination may yield blood on the examining finger in rectal or sigmoidal injury and occasionally in higher injury associated with hemorrhage. X-ray examination of the abdomen reveals free gas more frequently with perforation of the colon than of the small intestine. Proctoscopy is a valuable aid in diagnosing injury of the colon. Puncture of the abdomen or cul-de-sac may or may not be of value but is probably worthwhile.

Mild contusion of the colon, when diagnosed, may be treated expectantly. Severe contusions and lacerations demand immediate operation, the mortality in perforation of the large intestine increasing rapidly and directly with the time of peritoneal soilage to operation. Surgical treatment varies with the individual case. Minimal lacerations occurring less than 4 to 6 hours prior to operation may be closed primarily;[17] this time limit may be extended somewhat if contamination is minimal. In more severe injury segmental resection may be performed provided the injury is in the right colon and there is no gross contamination. In lacerations of longer standing, those in which there is gross contamination, extensive injury to the left colon, or in any case in which there is doubt about the advisability of simple closure or primary resection, closure of the laceration with institution of a proximal defunctionalizing colostomy or exteriorization of the involved segment is the procedure of choice. Primary anastomosis should never be attempted in a grossly contaminated field. The use of antibiotics, especially neomycin[18,19] or kanamycin,[20] within the bowel lumen or intraperitoneally at the time of operation has been shown to be extremely helpful in preventing postoperative complications in these cases.

Mesentery

Injury to the mesentery of the gastrointestinal tract is not uncommon. In the present series there were 2 such injuries. Injury usually occurs at the site of attachment of major vessels to the bowel, and is frequently associated with mesenteric hematoma or active intraperitoneal hemorrhage. Gangrene of the regional segment of intestine occurs if a major vessel is injured or if circulation is sufficiently embarrassed secondary to a mesenteric hematoma. Arterial injury is less common than venous injury. There is reportedly a common incidence of fat embolism associated with contusion and mesenteric hematoma.[7]

Minimal mesenteric injury is usually not diagnosed unless it is associated with more severe intra-abdominal injury. In more severe mesenteric vascular injuries, primary hemorrhagic shock, peritoneal irritation or, if gangrene of bowel occurs, delayed rupture is present. For severe mesenteric injury operation should be immediate and the mesentery should be repaired after hemostasis is accomplished. Mesenteric hematoma, when encountered at operation, should be watched closely and, if the hematoma increases in size, the mesentery should be opened and hemosta-

sis accomplished. Resection of the regional intestine is indicated if its blood supply is significantly impaired. Mesenteric rents, even those of minor nature, must be repaired if internal hernias are to be prevented.

Diaphragm

Diaphragmatic rupture secondary to nonpenetrating trauma occurs about as frequently as does colonic injury.[2] Rupture of the diaphragm usually occurs on the left and is frequently associated with injury to the spleen and liver.[7] With rupture of the right leaf of the diaphragm, herniation of the liver into the right chest is common.

In the present series rupture of the diaphragm occurred in 3 cases. In 2 cases the injury involved the left leaf of the diaphragm and was associated with rupture of the spleen; in the third case the right leaf was involved without associated injury and without herniation of the liver into the right chest.

Diaphragmatic injury is often associated initially with shoulder pain on the involved side and with findings of peritoneal irritation, especially when associated with splenic or hepatic injury. Some cases go undiagnosed for years following injury, the patient returning with vague symptoms or acute symptoms and signs of incarceration. Occasionally the patient may remain asymptomatic. X-ray films of the abdomen taken with the patient in the supine position to include the diaphragm frequently are diagnostic. Rupture of the diaphragm should be repaired as soon as the injury is diagnosed. Repair is best done through a thoracic incision on the involved side, although an abdominal incision or a thoracoabdominal incision may be indicated in some cases of abdominal visceral injury. Exploration of a considerable portion of the abdomen, with the exception of the pelvis, may be done through a thoracotomy incision.[2]

Other Injuries

Virtually any abdominal structure may be injured as a result of nonpenetrating abdominal trauma. Organs reported injured, but not encountered nor discussed in this present series, include the vagina, uterus, and broad ligaments.[2] Operation is usually indicated in the presence of injury or questionable injury to intra-abdominal structures, and the repair or correction of the injury must be designed to fit the requirements of the individual case.

Summary

Virtually any structure forming the abdominal wall or contained within the abdominal cavity, either intra- or extraperitoneally, may be injured as a result of nonpenetrating trauma to the abdomen.

A series of 47 cases of injury resulting from nonpenetrating abdominal trauma has been presented.

The more frequent injuries sustained secondary to nonpenetrating abdominal trauma have been reviewed as regards their incidence, nature, diagnosis, treatment, and prognosis. The over-all mortality rate in this series is 23.4 per cent.

The continued lowering of the mortality rate in nonpenetrating abdominal wounds depends upon: (1) the adequate treatment of shock; (2) better emergency supportive treatment, expecially as regards ventilation; (3) the frequent initial use of the Levin tube and urethral catheter; (4) earlier diagnosis and treatment; (5) judicious and early use of antibiotics; and (6) careful postoperative care, including management of electrolytes and fluids.

Prophylaxis of injuries due to nonpenetrating abdominal trauma has not in the past received adequate attention. The most common causes of this type trauma are auto collisions and vehicle-pedestrian accidents. Safety measures concerning autos and vehicles, and education of the public concerning motor and pedestrian safety regulations should markedly decrease the gross mortality from nonpenetrating abdominal injuries.

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Hemolytic Transfusion Reactions and Therapy: Case Report of Reaction Due to Anti-Le^a

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The author reviews the hazards of transfusion reactions, especially the hemolytic ones and modern management. In addition he adds the third instance of the rare hemolytic antibody anti-Le^a to the American literature.

DESPITE THE ACCUMULATION OF KNOWLEDGE concerning blood therapy and the treatment of the hemolytic phenomenon, patients continue to die at the rate of one per 3,000 infusions.[1] Virtually all of these deaths are preventable by restraint in the use of red cell components, by caution in the preparation and administration of blood, and by rational treatment of hemolytic catastrophes. Respect for these principles will largely offset the lethal potential of blood transfusions.

Immediate transfusion reactions are generally classified as allergic, pyrogenic and hemolytic. *Allergic reactions,* accounting for 23% of all reactions, respond well to antihistaminics.[2] Incompatible white cells and platelets have been shown recently to be a cause in allergic febrile reactions.[3] For *pyrogenic reactions,* which constitute the highest incidence of reactions (53 to 60%), only symptomatic treatment is available.[2] Bacteria or their pyrogenic products are generally responsible. *Hemolytic reactions* are usually the most serious but fortunately have the lowest incidence. Discombe reported 4,000 transfusions with 7 incompatibilities, Nicholas, 67,844 transfusions with 18 hemolytic reactions, and Hall and Hellman, 1,180 transfusions with 8 hemolytic reactions.[4] Most hemolytic reactions are due to ABO incompatibility, though occasionally an Rh incompatibility is responsible. Rarely reactions are caused by immunization to other minor blood groups.

In the literature there is no unanimity of opinion concerning the treatment of hemolytic transfusion reactions. This paper is directed to a review of the literature on treatment and to outline rational therapy, as well as to present an illustrative case involving immunization to Lewis^a.

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Review of the Literature

Muirhead[5] has analyzed 28 cases of hemolytic reaction including 18 of his own, and observed that 2 patients (5.4%) died in shock, 2 had hemoglobinuria without evidence of renal failure, and 24 (64%) developed acute renal failure. He recommended conservative management of patients who developed hemoglobinuria and acute renal failure subsequent to hemolytic transfusion reactions. Toluidine blue was successfully used to control the hemorrhagic tendency seen in several of his cases of hemolytic reactions. He also suggested that, since this bleeding resembles that of certain immunogenic conditions, adrenocorticotropic hormone should be given a therapeutic trial in its management.

Further, Muirhead stated that fluid and acid-base balance are the items of major concern in the stage of oliguria or anuria. The fluid replacement should be equivalent to the daily insensible loss of water plus the 24 hour urine volume. To combat acidosis he used sodium bicarbonate daily as necessary. A protein-free diet was employed to lower the nonprotein nitrogen blood levels. During the stage of diuresis and recovery, water, sodium chloride and potassium need to be replaced and carefully regulated. Replacement of water should be regulated by the urinary output and insensible loss, and the electrolytes by quantitation of the total loss through the urine. Fourteen (77%) of the 18 patients whose course Muirhead followed recovered. Fifteen patients had a 24 hour urinary volume of 500 cc. or less for one to 16 days, while 13 patients had a urinary output of 100 cc. or less per 24 hours for one to 16 days.

A high calorie, low salt diet, rich in vitamins B and C, was recommended by Muirhead and Hill.[5] Mollison[6] suggested that a protein-free, mineral-free diet containing an adequate number of calories and having a water content of 1,000 ml. per day be administered by the technic of Bull and associates.

Free hemoglobin from lysed red blood cells at low urinary pH precipitates in the renal tubules with resultant degeneration of the tubular epithelium. This transitory nephropathy is responsible for the one to 16 day anuric phase seen in severe reactions.[5] Therefore, it has been recommended that an alkaline urine be maintained by oral sodium bicarbonate or citrate or by intravenous 1/6 M sodium-R-lactate to prevent precipitation of the hemoglobin.[5,6,15]

Peritoneal irrigation and, more recently, the artificial kidney have been used with good results in hemolytic reactions complicated by anuria and progressive uremia.[7,8]

Seven cases of unilateral or bilateral decapsulation of the kidney resulting in cures have been reported. Those recommending the procedure advise that it should be used only when medical and supportive therapy fail to check progressive uremia. Mollison[6] states that there is no evidence in favor of such drastic treatment as decapsulation of the kidneys or splanchnic block. *In vitro* experiments in this laboratory have indicated that decapsulation of the kidney produces only transitory benefit and results in rather severe irreversible renal damage. Other procedures recommended in renal shutdown secondary to transfusion reactions are diathermy and irradiation to the kidney regions, ureteral catheterization and lavage of the renal pelves, spinal anesthesia and venesection. These measures are of no proven value and have been abandoned.

Recently Demaris and Harris[9] reported a study of the effect of magnesium sulfate on dogs in which they produced a hemolytic reaction in normotensive animals by an infusion of lysed red blood cells. The introduction of large amounts of lysed cells caused a lowering of glomerular filtration rate (GFR) and effective renal plasma flow (ERPF.) with a concomitant fall in urinary output. When magnesium sulphate was introduced intravenously during the lysed cell infusion, the GFR and ERPF. reverted toward normal as the salt counteracted the vasoconstriction responsible for the diminishing GFR and ERPF.

In 1951, Unger[10] reported a case of acquired hemolytic anemia secondary to circulating univalent auto-antibodies. Although there was no significant drop in the antibody titer, the patient showed clinical and hematologic improvement on ACTH therapy. It was then possible to administer washed red blood cells without untoward reaction. Withdrawal of the ACTH followed by renewed hemolysis demonstrated the value of this hormone in blocking the lysis of red cells in the presence of circulating antibody.

Myerson and Clagett[11] reported an instance in which 1,400 cc. of group incompatible blood was given without side effects to a patient on ACTH and cortisone therapy. The authors concluded that the administration of ACTH and cortisone was a possible factor in the prevention of the reaction. In recent years Hill[12] has successfully treated several hemolytic reactions with combined ACTH and corticosteroid therapy. The measure of success achieved as compared with untreated cases has been quite striking. Spellman[13] has recently reported that immediate administration of hydrocortisone succinate, ACTH, and cortisone effectively blocked hemolysis and overcame shock in a patient given 200 cc. of incompatible blood.

Treatment of Hemolytic Reactions

Avoiding unnecessary transfusions is the surest prophylactic measure against hemolytic reactions. Red cell free-blood components instead of whole blood should be administered whenever possible. Technical errors may be virtually eliminated by strict adherence to the specifications for the operation of blood banks set forth by the American Association of Blood Banks.[14] Human errors are generally prevented by a system of counter checks at the time of administration of the blood. As a precaution against an overwhelming infusion of incompatible blood, all red cell preparations should be administered slowly at the rate of 15 drops per minute during the first 15 minutes. Most severe reactions will be manifest in this length of time. Vital signs should be recorded at 30 minute intervals.

As soon as any signs of a reaction, such as generalized tingling sensations, anxiety, fullness of the head, precordial pressure, a sense of

constriction in the chest, pain in the lumbar or chest regions, chills and fever, nausea, vomiting, a hemorrhagic tendency or a change in blood pressure, are detected, the infusion of blood should be immediately discontinued. The presence of free hemoglobin in the patient's serum or urine is sufficient justification to begin treatment, and it should be instituted without delay.

An infusion of ACTH, 50 units in combination with prednisolone, 50 mg. in 250 cc. of 10% glucose in water should be started immediately and administered over a three hour period. The infusion should be slowed down if flushing appears in the patient. Twenty-five mg. of prednisolone may be given intravenously every 6 hours for the subsequent 24 hours. If, however, the patient can tolerate oral medication, 50 mg. of prednisolone by mouth given every 6 hours for 24 hours or longer if hemolysis continues, is preferable to its intravenous administration. Since the usual complications associated with ACTH and prednisolone therapy appear on prolonged use of the drugs, these large doses can be given with maximum safety. The main precaution to be observed is adequate antibiotic coverage in septic patients. Although prednisolone is recommended here, any one of several related corticosteroids may be used provided the dosage is adjusted to the same physiologic level.

If a fall in blood pressure occurs, a pressor, arterenol or Levophed, should be used to maintain the blood pressure within the patient's normal range. These drugs have replaced the epinephrine and ephedrine sulfate used in the past.[2] Plasma or 25% salt poor albumin can be used to physiologically expand the blood volume in the shock that often accompanies the hemolytic transfusion reaction. Fresh frozen plasma is of considerable value in restoring the deranged coagulation mechanism. Additional compatible blood may be used, not to combat shock, but only if profound anemia supervenes. One should consider that any additional red cell transfusion will introduce free hemoglobin and friable red cells, and hence, add to the renal damage already effected by the reaction.

Maintaining an alkaline urine to prohibit the precipitation of hemoglobin in the renal tubules is vitally important. Alkalinization can be accomplished by the use of sodium bicarbonate orally, or more rapidly by giving 1/6 M sodium-R-lactate intravenously. During the initial 8 hours following the onset of hemolytic symptoms, the patient should be *fully* hydrated in order to encourage diuresis. The mild diuretic effect of 10% glucose makes it an ideal fluid for this purpose. Potent diuretics are contraindicated. The various intravenous mixtures may be administered simultaneously by means of "Y" recipient sets. Caution should be exercised to detect and avoid pulmonary edema during this stage. Subsequently the fluid intake should be carefully regulated according to the output of urine plus the insensible loss of fluid.

If therapy is begun too late, the patient will most likely develop oliguria or anuria. Dialysis by means of the artificial kidney may be employed if conservative care fails to control the progressive uremia.

The patient should be carefully evaluated and his course followed by laboratory studies. A complete blood count, hematocrit, urine analysis, and determination of electrolyte values should be performed daily. Kidney function should be evaluated by blood urea nitrogen determinations. Hemoglobin and bilirubin levels on urine and serum, and a direct Coombs' test will help gauge the severity of the hemolytic reaction. A pano-cell analysis of the recipient serum will identify the blood group to which the patient has been immunized.

Case Report

An 18 year old, well-developed, white woman had documented rheumatic fever at 6 years of age. By the age of 12 she had developed mitral stenosis with exertional dyspnea, orthopnea, and fatigue. In September 1957, she developed a "cold" after which she became progressively more dyspneic and had episodes of hemoptysis. In December 1957, her congestive heart failure was treated with digitalis.

After being referred to the University of Oklahoma Hospital, a mitral commissurotomy was performed on June 10, 1958. The postoperative course was complicated by a hemolytic transfusion reaction on July 24, 1958. During operation the patient received 500 cc. of type-specific and crossmatched whole blood without reaction. Preoperatively the patient's Hgb. was 12.9 Gm. but it fell to 8.6 Gm. on the 4th postoperative day. On the 5th and 6th postoperative days, the patient was given 250 cc. of type-specific and crossmatched whole blood without reaction. On the 14th postoperative day the patient's Hgb. was 10.6 Gm. and 250 cc. of typed and crossmatched whole blood were started on the patient. After receiving approximately 100 cc. of the blood the patient had a chill and complained of feeling cold. The blood pressure rose and the urine appeared "bourbon-colored." The blood was discon-

tinued, and within an hour 20 units of ACTH, in 250 cc. of glucose water was administered intravenously at 15 drops per minute. This was followed in 6 hours by 25 mg. prednisolone in 250 cc. of 5% glucose water at seven drops per minute. Hydration was maintained in accordance with the urinary output. Thereafter the patient's vital signs remained normal and stable, and her urinary output was adequate.

The Hgb. after the reaction was 10.1 Gm. A urinalysis immediately following the transfusion reaction showed 4+ proteinuria, and a strongly positive Hematest. Twenty hours later there was neither proteinuria nor hemoglobinuria. The serum bilirubin, BUN., creatinine and electrolyte values remained within the normal range throughout the hospital course. The patient recovered rapidly and was discharged June 28.

Confirmation of the previous blood typing and crossmatching using fresh recipient blood and blood from the donor bottle showed complete compatibility. Specimens of these bloods were sent for further study to the Ortho Research Foundation where the presence of anti-Le^a ($Lewis^a$) was detected in the patient's serum.

Comment. Modern procedures of blood banking rarely fail to detect major or minor blood groups incompatibilities. Fudenberg and Allen[16] have reported 2 cases of hemolytic transfusion reactions in which typing and crossmatching showed the donor and recipient bloods to be completely compatible. The cause of the failure to detect the incompatibility in these cases and the case presented is not clear.

Hemolytic reactions involving anti-$Lewis^a$ are extremely rare. Only 7 cases have been reported in the world literature.[17,18] The rarity of reactions involving the Lewis antigens may be due to their presence in the serum rather than in the red cell stroma as are all the other blood group antigens. The hemolytic reaction reported above is the third American case resulting from immunization to $Lewis^a$.

Summary

The treatment of hemolytic transfusion reactions is reviewed and a regimen for successful prevention of renal shutdown is outlined. This treatment employs intravenous ACTH and corticosteroids to ameliorate the lysis of transfused red cells, alkalinization to prevent precipitation of hemoglobin in the nephron, pressors to prevent anoxic tubular damage, and judicious hydration to promote diuresis.

An illustrative case of a hemolytic transfusion reaction due to a rare antibody (anti-Le^a) is presented.

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Practical Rehabilitation of the Asthmatic Patient

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Rehabilitation is playing an ever-increasing role in the management of chronic disease. This is as it should be for most persons suffering from chronic incapacitating disease can be retrained with respect to certain of the physiologic functions.

REHABILITATION of the bronchial asthmatic patient has been the subject of much interest in recent years in the United States and as a result various organized programs have been formed by individual groups.[1-6] A review of all programs in the United States reveals that at the present time there are three types under which an individual program may be classified. These are: (1) Inpatient Program— (usually with national and international sources of patients and funds) as, Jewish National Home for Asthmatic Children, Denver, Colorado; Sahuaro School, Tucson, Arizona; Betty Bacharach Home, New Jersey; and others; (2) Inpatient-Outpatient Program — (usually state and/or regional sources of patients and funds) as, Children's Convalescent Hospital, Cincinnati, Ohio; George Washington University Hospital Rehabilitation Program, Washington, D. C.; and others; (3) Outpatient Program— (local, city, county, and/or regional sources of patients and funds)—using Young Men's Christian Association (Y.M.C.A.) type facilities, as, Charleston (West Virginia) Y. M. C. A. Program; Joliet (Illinois) Y. M. C. A. Program; Dallas (Texas) Program; Burlington (Vermont) Y. M. C. A. Program, and others. There are also many groups throughout the country today which are attempting to organize a rehabilitation program of one of the above types.

Those in the field of allergy can be credited with many outstanding accomplishments. However, there has been a definite lag in the field of rehabilitation of the asthmatic patient as shown by the small number of such programs. Supervised respiratory and physical exercises have been utilized for many years as a means of improving respiration in patients who have bronchial asthma. Most workers have concentrated on respiratory exercises alone, with the general program of physical exercise relegated to the background.[7-13] Management of the emotional factors has also not been well integrated into many of the programs because there is so much disagreement concerning these factors and their relative importance in the over-all management of asthmatic patients. Controversy continues over whether or not there is a typical "asthmatic personality," and due to the wide range of personality make-up found in asthmatic patients, a variety of opinions exist as to the establishment of a uniform approach to the problem.[14,15] In many instances psychiatric therapy, in various forms, has been utilized with good results.

Even though there are numerous types and degrees of disabilities in bronchial asthmatic patients, there are certain general principles which are applicable in an approach to the complex problems of total rehabilitation. The patient is almost always faced, in varying degrees, with psychologic, emotional, and social problems associated with his illness. Through the combined skills and efforts of all concerned, including the patient's family, he can be motivated and aided on a road to recovery which frequently may be both long and trying. To develop initiative, motivation, and thereby cooperation, the patient must be helped to accept his illness, his medical therapy and the total program being offered for his rehabilitation. There should be no penalties attached to the philosophy of getting well. To secure a realistic goal with a

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minimal degree of handicap, rehabilitation procedures must be medically prescribed, instituted early, and intensively maintained for a sufficient period of time. Rehabilitation should begin at the first visit of the patient to his physician. The program must be permeated with realism for many activities may actually be beyond the realm of accomplishment to some patients. Great care should be taken by the treatment and rehabilitation team to see that the program does not "get out of hand."

While the medical and emotional aspects of the care of the asthmatic should primarily be under the direction and guidance of the psychiatrically oriented allergist, medical rehabilitation should be the responsibility of the physiatrist, who is specially trained to render this type of care. Psychiatric and psychologic aid should also be included.

Unfortunately, these types of specialists and facilities are not always available, particularly in the small community. It therefore becomes necessary to utilize whatever facilities that do exist in these communities.

It has been demonstrated that an "outpatient" type rehabilitation program is the apparent answer for this situation at this time. This type of program will enable the teaching of respiratory and physical exercises on a basis of group therapy. It can be done locally and be made available to all asthmatic patients by using Y. M. C. A. facilities which are found in most cities of the United States. This type of program has been outlined in detail in a previous report.[16]

Physical rehabilitation in the Y. M. C. A. type of program is usually carried out by the Physical Fitness Director of the Y. M. C. A. under the supervision of a trained allergist. This instructor must be well qualified for teaching. Furthermore, he must be taught the basic essentials concerning allergy, and asthma in particular, so he may fully appreciate the problems encountered in the asthmatic patient. He must also be familiar with the emotional aspects pertaining to bronchial asthma. It is a decided advantage, particularly when the classes include a large number of children, to have several instructors to prevent stagnation of ideas in regards to procedures and interest. This "conquest of boredom" is extremely important in work with asthmatic patients and a frequent change in activities is advocated. Emotional dependence on one instructor is also not desirable. Programs for the rehabilitation of asthmatic patients must be directed and supervised medically and they require frequent re-assessment and re-evaluation for maximum effectiveness.

The asthmatic patient during the program activities must be provided with "security from attacks" by having readily available, a convenient self-administered medication. Experience has indicated that an oral combination of ephedrine 24 mg., phenobarbital 8 mg., and theophylline 130 mg.* effectively accomplishes this end. At the height of their allergy seasons or when attacks are frequent, patients are instructed to take the medication every 4 hours prophylactically. The patient should be trained to discontinue his activities and take his medication at the first sign of an attack. The patient's medical therapy should be no different while he is participating in the program than when he is pursuing his normal activities. The atmosphere surrounding the program should be one of play, however, and not one of medical treatment.

The program is divided into four broad phases: Basic breathing technics, postural exercises, gymnastics, and activities (combatives) of adaptation conditioning or confidence building. Competition with the patient's own record should be encouraged rather than competition with other patients. The rehabilitation program may be the first experience with exercise of any kind for many patients. Parents of the children are usually excluded from the sessions until the child is able to master each of the technics presented to him. This is a partial form of "parentectomy."[1] With proper attention to the bronchial asthma as allergy, and with the cooperation of patient, family, physician and physical instructor, the results obtained will be found to be beneficial both in combating the disease and in improving the adjustment of personality. Experience with the Charleston Asthma Conditioning Program for children dates back to 1956, and the documentary motion picture "The Hidden Tear" ably demonstrates the functions and results of the program.**

To aid in the organization of programs in

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small communities, a joint venture was started by the Charleston Y. M. C. A. Asthma Conditioning Program and the Physical Education Department of the West Virginia Institute of Technology. A grant was provided for the purpose of aiding in the training of future instructors of physical education in the field of asthma rehabilitation. The physical education instructor may thus be provided with the necessary formal education for participation with a local physician in the organization of this type of program. This joint educational venture has been started only recently (1959) but preliminary results indicate that this is a practical program which may be set up in any small community-type college. It is conceivable that a similar program utilizing instructors of physical education may be adapted to other fields of medical rehabilitation.

The Charleston (West Virginia) Y. M. C. A. Adult Asthma Conditioning Program was organized in 1957. Its purpose was to provide a well-balanced program of physical activities and breathing exercises for the adult asthmatic patients of all ages. Each patient is under the care of his own private physician who must give his authorization for the patient to participate in the activities. This program utilizes medicine-ball drill, basketball, calisthenic drills, postural and diaphragmatic breathing exercises and simple gymnastics. Music is incorporated as an aid in increasing exercise tolerance. At the conclusion of each session the patients are encouraged to utilize the steam room and to have a "rub-down."

Because of the variation of ages in the group (18 through 78 years) each patient is carefully observed for evidence of dyspnea, pallor, unusual tachycardia or other symptoms and signs which may indicate that the patient is over-exerting himself. Also frequent rest periods are allowed during each session so over-exertion may be prevented. The results of this program have been quite satisfactory in the decided improvement of patients with no evidence of harm being observed in any participating in the outlined activities. The full results of the adult program will be the subject of another communication.

Experience with the Adult Asthma Rehabilitation Program has indicated that there is a large segment of the population which is in need of pulmonary rehabilitation. The enormous increases in population and human life span indicate that more people than ever before will be faced with this problem in the future. Since the number of physicians receiving training in allergy today does not reflect these increases, we are more than ever forced to seek a solution to the rehabilitation problem at a nonspecialized local level.

Conclusion and Summary

The developing potential for rehabilitation of the asthmatic patient opens a new avenue of hope for him. Moreover, a rehabilitation program can be adopted in any community with recreation facilities and direction. This fact, combined with the good results obtained with these programs, should stimulate each physician treating asthmatic patients to search out the needs of his own community. To make total rehabilitation available to the asthmatic patient is not only a moral obligation and responsibility, but the increase in population and in human life span brings us face to face with realization that the number of patients with bronchial asthma will also parallel these increases.

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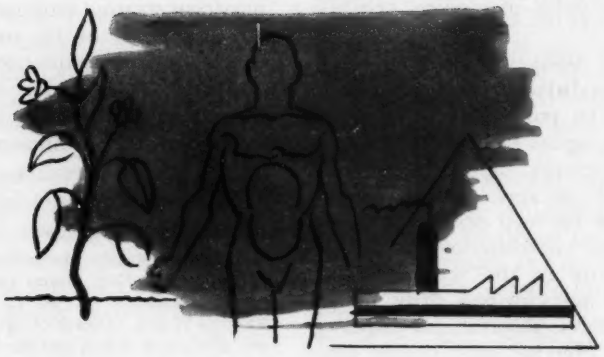

Chloramphenicol in Typhoid Fever—A Reduced Dosage

N. ISLAM, M.D., and A. Q. M. NURUL HAQ, M.D.,† *Dacca, East Pakistan*

This study of adequate but minimal dosage of an antibiotic in the treatment of typhoid fever should be of especial interest to the readers in those areas of the globe where cost is an important consideration.

CHLORAMPHENICOL came into the therapeutic field a little over a decade ago. Woodward and associates,[1] made the first study on the effect of chloramphenicol on typhoid fever in Kaulalampur. Cook and Marmion[2] gave an initial dose of 50 mg. per kg. body weight, followed by 250 mg. every 2 hours. Total dosage in their series was 20 to 22 Gm. Good and Mackenzie[3] used 4 Gm. as the initial dose, and subsequently continued in the same way as Cook and Marmion with a total dose of 20.75 Gm. per patient. Lomax[4] treated a 20 year old boy in a typhoid state on the thirteenth day of the disease with an initial dose similar to that above. However, he continued the subsequent doses differently—viz., 1.5 Gm. twice daily, rather than every 2 hours; a total dose of 33.5 Gm. was used. Rankin and Grimble[5] recommended an initial dose of 4 Gm., followed by 3 Gm. daily until the temperature became normal, followed by 1.5 Gm. daily for a week, and then 1 Gm. daily for another week. Smadel, Bailey and Dethwaite[6] recommended an initial dose of 3 to 4 Gm. followed by 1.5 Gm. every 12 hours until the temperature became normal, and thereafter 1.5 Gm. daily for 7 days. Another 1 Gm. daily was continued to conclude a total period of 14 days treatment. Gaubert and associates[7] reported satisfactory results in doses of 2 Gm. daily. Fuchs,[8] while treating 120 adult patients, required a total amount of chloramphenicol ranging from 20 to 90 Gm. per patient.

It is apparent, therefore, that the dosage of chloramphenicol has had very wide variations. Even today and even in the same hospital, different physicians follow different dosage schedules. To determine an optimum dosage schedule, we decided to carry out the present study.

Materials and Methods

Selection of patient. Two hundred cases were selected from the four medical units of the Dacca Medical College and Hospital during the period of 18 months from February 1958 to July 1959. Diagnosis was based on clinical and laboratory findings. Cases which were diagnosed clinically as typhoid fever but could not be substantiated by laboratory findings were excluded. The agglutination test in cases negative on culture was taken as diagnostic only when there was a rising titre on at least two or three successive occasions and the clinical diagnosis was typhoid (Table 1).

The cases were divided into four groups, each consisting of 50 cases. The basis for laboratory diagnosis in the four different groups was comparable. Age and sex distribution in the different groups is tabulated in table 2.

No patient below the age of ten was included in the study since the pediatric cases were not included in the series because of the limited number of beds. Of 200 cases included in the list 44 were in females, or 22% of the total.

Except in the cases in which the patients were too toxic to warrant delay in treatment, all were kept on symptomatic treatment until the diagnosis was confirmed by laboratory tests. Cases in which chloramphenicol was used from the day of admission were included in the study only when the laboratory findings confirmed the clinical diagnosis.

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TABLE 1

LABORATORY DIAGNOSTIC BASIS IN FOUR DIFFERENT GROUPS

Group	Number of Cases Having Positive Reaction in			Total Number of Cases
	Blood Culture Only	Agglutination Test Only	Blood Culture and Agglutination Both	
I	15	21	14	50
II	16	21	13	50
III	9	23	18	50
IV	8	22	20	50

Treatment schedule. All the patients were given an initial dose of 500 mg. (2 capsules) of chloramphenicol, and then the four groups were put on 250 mg. (one capsule) two hourly, three hourly, 4 and 6 hours respectively, until the temperature decreased to normal. No patient was given more than 500 mg. as the initial dose, irrespective of toxicity or duration of the disease. As soon as the temperature returned to normal, the interval between doses was increased by 2 hours except in the 6 hour group—e.g., the 2 hour group was moved to 4 hour medication, the 4 hour group to 6 hours, and the 6 hour group continued on a 6 hour schedule. The 3 hour group, for convenience, was also continued as 6 hour. The 4 hour dose of the first group was reduced to 6 hour doses 2 to 3 days after the temperature was normal. The treatment was continued from 4 to 7 days after the temperature reached normal levels. During the febrile period a liquid diet was used. Soft rice and boiled fish were allowed from the second day after the temperature was normal. Other supportive treatments,—viz., glucose and vitamin C—were given as usual.

Results

Four patients died of perforation and shock during the course of treatment—one from the 6 hour group, 2 from the 3 hour group, and one from the 2 hour group. The deaths occurred on the tenth, fifteenth, eighteenth, and twenty-fifth days of the disease, and after the eighth, seventh and third days of admission. Seven patients had hemorrhage,—one in the 2 hour group, one in the 3 hour group, 2 in the 6 hour group, and 3 in the 4 hour group. One of these 7 patients (in the 6 hour group) had severe hemorrhage and shock. Cortisone was given in the usual dose in addition to chloramphenicol; the patient recovered. The average day of response after instituting chloramphenicol therapy, the total amount of chloramphenicol required per patient, and also the number of cases relapsing are tabulated in table 3.

Relapse reported. All patients on discharge were requested to report if there was recurrence of fever in the course of ten days or so. Since none reported, reply post cards were posted to individual patients. The percentage of cases reporting relapse are listed in table 3.

Discussion

Knight and associates,[9] in the treatment of 13 patients, reported that the average day of response was 3.2 days irrespective of the duration of disease. While El Ramli,[10] reporting on a larger series (200 cases), concluded that this period was not affected by the duration of the disease, dosage interval, or even the severity of the symptoms. In our series the average day of response in the four different groups varied within the range of 3.7 to 4.8 days. This again did not increase

TABLE 2

AGE AND SEX DISTRIBUTION IN FOUR DIFFERENT GROUPS

Group	Minimum Age	Maximum Age	Average Age	Male	Female
I	10	35	21	40	10
II	11	40	19	44	6
III	10	30	19	35	15
IV	10	35	22	37	13

TABLE 3

Group and Number of Patients	Dosage	Average Day of Response	Average Total Amount of Antibiotic	*Average Cost Per Pt. Rs. As. P	Per Cent of Relapse Reported
I	1 cap. every 2 hrs. i.e., 3 G/24 hrs.	3.7	18 Gm. (72 cap.)	81-0-0	6
II	1 cap. every 4 hrs. i.e., 2 G/24 hrs.	4.8	13.5 Gm. (54 cap.)	60-12-0	8
III	1 cap. every 4 hrs. i.e., 2 G/24 hrs.	4.1	11.5 Gm. (47 cap.)	52-14-0	6
IV	1 cap. every 6 hrs. i.e., 1 G/24 hrs.	4.	7.75 Gm. (31 cap.)	34-14-0	10

*The Rupee is equivalent to about 21 cents; there are 16 Annas in a Rupee.

with the dosage interval—e.g., the average day of response in the 3 hourly group. Our findings therefore confirm the view that the day of response is unaffected by the dosage interval. The average day of disease before admission in the different groups in our series varied from 7.5 to 10.5 days. This is because of the standard teaching in this part of the country that any remittent fever of more than 7 days duration must be considered as typhoid fever unless otherwise proved, and no patient clinically diagnosed as typhoid fever is refused admission. Even the lay people call it "Meyade Bukhara Jvar" (local language "Meyade" means "of definite duration" and "Bukhara Jvar" means "fever"), and they know that chloramphenicol is the drug of choice and that the hospital is most suitable for treatment.

We have used the initial dose of 500 mg. (2 capsules) for all our patients. This we believe is a compromise between the initial loading dose so long advocated and the subsequent dose, because of our experience with shock-like symptoms originally attributed to be toxicity from chloramphenicol. Stephens[11] pointed out that the initial loading dose of 3 to 4 Gm. may produce vasomotor collapse due to the liberation of bacterial endotoxin. In the same year Mollaret and associates[12] investigated two deaths in a series of 54 patients and concluded, on the basis of animal experiment, that when the total daily dose exceeds 2 Gm. a large quantity of endotoxin might be released from the killed bacilli producing vasomotor collapse. We believe the initial loading dose is not only unnecessary but also involves a definite risk in the liberation of a large amount of endotoxin. It may even be presumed that a loading dose may precipitate death in some patients with heavy infection. On similar ground we cannot quite justify a large dose at long intervals as advocated by Smadel and associates.[6] The dosage schedule reported by Kamat and Damany[18] is the lowest one we could trace in the published literature. These authors treated 87 patients. The average duration of fever before admission was 12.2 days and chloramphenicol was given in the dosage of 0.75 Gm. (3 capsules) every 12 hours until the temperature came down to 99 to 100° F., and then 0.5 Gm. (2 capsules) every 12 hours until the temperature reached normal, and subsequently 0.25 Gm. (one capsule) twice daily. The average day of response was 5.3 days after admission after 8.2 Gm., whereas in our 6 hour groups the corresponding figures were 4 days, 4.25 Gm. respectively.

A comparison of the results in our four groups does not show any significant difference between the average day of response and also the number of relapses; the 4 deaths we have recorded, however, had no relation to the dosage schedule, since the one who died early (10th day of disease) was from the highest dosage group (2 hour group), and there were 2 deaths in the 3 hour group as against one in the 6 hour group. Watson[14] reported a relapse rate of 6% in a series of 300 patients treated with chloramphenicol for 10 to 15 days after the patient became afebrile. He believed that the bacillus inside the cells protected from antibiotic attack of the prolonged treatment tend to die within the tissue cells, whereas short treatment tends to cause relapse. It was apparent, therefore, that the length of treatment, rather than the dosage, is the determining factor for the relapse. All our patients in the different dosage groups

were given chloramphenicol for 4 to 7 days after the temperature returned to normal, and the relapse rate varied from 6 to 10 per cent. Fuchs[8] reported a relapse rate of 23% with a dosage of 1 Gm. twice a day for 7 days after the temperature reached normal. Having given treatment for the same period our relapse rate remained much smaller. We, therefore, do not find enough justification for continuing the treatment for more than 7 days after the patient becomes afebrile. We believe the high relapse rate in Fuchs' series might be due to the long interval between doses rather than the dosage per day. In view of the wide prevalence of typhoid fever in our country and while initiating the study, we thought a reduced dosage, if found effective, might be of economic advantage. A comparison of the actual cost per patient in the four different groups shows that on an average it has been Rs. 81-0-0, Rs. 60-2-0, Rs. 50-14-0 and Rs. 34-4-0 in the 2 hour, 3 hour, 4 hour, and 6 hour groups respectively. The 6 hour group, therefore, involves the minimum expenditure, having the same efficacy as in the other three groups, and also is comparable with the results obtained by other authors. We would, therefore, advocate chloramphenicol in the dosage of 500 mg. initially, followed by 1 Gm. every 24 hours until the temperature returns to normal and remains so for 4 to 7 days.

Summary

1. Two hundred patients with typhoid fever admitted to the Dacca Medical College Hospital during a period of 18 months have been treated with chloramphenicol in four different dosage schedules, with an equal number of patients in each group.

2. Dosages used were 500 mg. as the initial dose in all the cases, and subsequently 3 Gm., 2 Gm., 1.5 Gm. and 1 Gm. daily respectively in these different groups.

3. No appreciable difference in the average day of response and the number of relapses has been found.

4. Omission of the initial loading dose of 3 to 4 Gm. has not been found to affect the course adversely.

5. Literature on chloramphenicol in typhoid fever, as far as practicable, has been reviewed and the results compared.

6. An initial dose of 0.5 Gm. followed by 1 Gm. daily for 4 to 7 days after the temperature became normal, has been found to be most economical and as effective as other dosage schedules in the present study as well as those reported by other authors.

Conclusion

In view of the wide prevalence of typhoid fever and the cost of the drug chloramphenicol, treatment of a case of typhoid fever in a country where the per capita income is low is an economic problem. An initial loading dose of 3 to 4 Gm. is not only unnecessary but is an economic burden to a good number of our patients who do not like to be in the hospital for the same reason. Furthermore, it may have the risk of liberating bacterial endotoxin and causing death at least in some cases. After an initial dose of 0.5 Gm., 1 Gm. daily until the temperature is normal and for 4 to 7 days thereafter is the most satisfactory form of treatment that we would like to recommend.

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EDITORIALS

THE ABDOMINAL SURGEON'S CHALLENGE TO PERITONITIS

Each of the past three decades has marked a definite stage in the attempt to eradicate the most dreaded complication subsequent to intestinal surgery—peritonitis. The 1930's were a period of surgical frustration, dissatisfaction and the application of various ephemeral remedies on the part of abdominal surgeons, anxious to enlarge the scope of intestinal procedures but deterred by the then high mortality, three fourths of which was attributable to peritoneal infection. Multiple staged operations were resorted to in the hope of not only reducing mortality, even at the expense of increased morbidity, but in compliance with a current theory that the mild peritonitis sure to follow the first surgical intervention (expected in almost the same degree as the "laudable" pus uniformly present in surgical wounds in the pre-Listerian era) would beneficially immunize the peritoneal cavity when a second procedure was contemplated within thirty days. Among other clinical experiments tried during this decade in the hope of combatting peritonitis was intraperitoneal vaccination before operation by injections into the abdomen of partially killed organisms, a procedure associated with severe reactions and high fever and soon abandoned. "Coli-bactragens" were advocated and had wide use for a brief period. Introduced in the abdominal cavity prior to the closure of the abdominal wall, the vaccine was designed to produce rapid mobilization of leukocytes in the peritoneum for their bactericidal effect. Obviously, these expedients had brief vogue and did not materially change the postoperative picture.

The next decade ushered in an era of chemotherapy. The 1940 Transactions of the Southern Surgical Association records a report concerning the recent trial of sulfanilylguanidine at Johns Hopkins Hospital. However, the Transactions of the same organization the following year sounded the early death knell of this drug to combat peritonitis, because it was too readily absorbed from the intestine and because toxic symptoms had been reported in the presence of impaired renal function or intestinal obstruction. At the same time, a new drug, studied experimentally by Edgar J. Poth, was offered for preoperative preparation of the colon. The chemical was succinylsulfathiazole, which is still believed, together with a closely related chemical, sulfathalidine, to be relatively nontoxic and to produce a uniform reduction of coliform organisms. The 1940's saw an active and widespread use of these drugs and of other sulfonamides which were dusted into the abdominal cavity or into surgical wounds. It is an interesting comment that practically all new antiseptic drugs or chemicals, including not only the sulfonamides but penicillin and the antibiotics, have been, for at least brief periods, deposited by surgeons in the peritoneal cavity or in wounds of the abdominal wall but that their empirical use in this fashion has never persisted.

But just as decisive a change in preoperative technic during the forties as the use of chemotherapy came with the decision by surgeons during this same decade to thoroughly cleanse the intestine previous to operation, rarely done previously. Even in the mid-1940's, observing surgeons began to assert that this procedure had been proven as effective a factor in reducing mortality and morbidity as had the new intestinal antiseptics.

While the known poorly absorbable intestinal antiseptics continued to be used in colonic preparation during the last decade, with the advent of neomycin emphasis during this latter period has been placed increasingly upon the use of antibiotics. It seems unfortunate that one new antimicrobial agent of this character has followed another as the years have passed, and that when one drug has been evaluated it has frequently lost its usefulness and another, reputedly better than those previously used, has taken its place. None of these drugs have been proven to completely sterilize the bowel, and their use tends to neglect of other methods and principles of preparation already proven effective. We now know that mechanical cleansing of the intestine by eliminating organisms contained in the fecal con-

tent causes a tremendous decrease in the bacterial count. We now realize that the use of antibiotics may bring about complications even more severe than peritonitis, and that while there has been a reduction in incidence of peritonitis there has been a corresponding increase in thrombo-embolitic phenomena subsequent to intestinal surgery. These considerations suggest that the decade beginning in 1960 might be devoted to a more accurate appraisal of present methods and possibly a return to the principle of bowel cleansing, restoration of fluid and blood ratios, and possibly the use of the milder sulfonamides as adjuncts only.

CURTICE ROSSER, M.D.

THE INDISCRIMINATE USE OF BLOOD

With the monumental discovery by Karl Landsteiner in 1901 that human blood contained iso-agglutinins capable of clumping other human red blood cells, the feasibility of safely transfusing blood from one individual to another became a reality. The experience gained in World War I demonstrated that stored blood was a necessity, but it was not until several decades later that the large-scale use of stored blood brought about the modern blood bank.

Since that time the incidence of untoward reactions from blood transfusions has diminished appreciably. In 1922, about one out of every four units of blood given resulted in a transfusion reaction of some type. Within the last ten years this rate has been drastically reduced. Most authorities quote a reaction rate of 3 to 6%, but one individual quotes an incidence as high as 20 to 40 per cent.[1] Thus, although the risks from blood transfusions may be relatively slight when compared with the over-all benefits attained, reactions are still prevalent enough to warrant caution in the indiscriminate use of blood.

Initially, transfusion reactions were classified simply as allergic, febrile, and hemolytic. With increasing knowledge it has become possible to recognize more categories of transfusion reactions. Today with the improvements in medical technology and immuno-hematology these reactions have been more thoroughly studied and thus categorized into many and various types. The allergic or anaphylactoid type of reaction may be characterized by an urticarial rash, angioneurotic edema, fever, or rarely respiratory difficulties, the latter the result of "pulmonary hives."[2,3] Antihistaminics, epinephrine, and epinephrine-like compounds and in resistant cases, corticosteroids may be of value in treating allergic reactions.

The most important transfusion reactions concern hemolysis, bacterial contamination of blood and blood products, transmission of diseases (especially homologous serum jaundice), and the circulatory overload reaction.

Today the hemolytic transfusion reaction is not so much the result of inadequate crossmatching procedures as it is a case of human error. The wrong bottle of blood may inadvertently be given to the wrong patient. It is extremely important to recognize the reaction early so that only a minimal amount of incompatible blood is given. It is especially dangerous when incompatible blood is given to an anesthetized patient where the usual signs of hemolytic reaction may be absent. In such a situation the only manifestations may be unexplained tachycardia, hypotension, flushing or shock.

There remains considerable difference of opinion regarding the importance of the concept of the dangerous universal donor. Nevertheless, it appears that "immune" iso-antibodies, probably a result of previous iso-immunization, may exist in the plasma of certain group O blood donors and may produce hemolysis in susceptible recipients of other blood groups.[4] Unfortunately, there exists no simple or reliable screening test for the detection of such "immune" iso-antibodies.

The simple saline crossmatch fails to detect the presence of incomplete or blocking antibodies which can be unearthed by the more sensitive albumin and indirect Coombs crossmatches. Especially in patients who have previously received blood or blood products should these more refined technics be used. Today the indirect Coombs crossmatch is being used by most hospitals, in an effort to detect this hidden type of incompatibility which could result in a hemolytic transfusion reaction.

Hemorrhage may complicate a severe hemolytic transfusion reaction. Theoretically circulating red cell stroma, the result of antecedent hemolysis, serves as active thromboplastic material and may deplete the body of

fibrinogen and the other labile coagulation factors. Treatment lies in replacement of *compatible* whole blood and fibrinogen.[5]

The reaction which carries a very high morbidity and mortality is the transmission of homologous serum jaundice. The incidence of homologous serum jaundice has been found by Strumia and his co-workers[6] to be 0.3%, or one case for approximately every 330 units of blood transfused. Finch[1] states that active virus occurs in one of every 200 donors. The mortality from post-transfusion hepatitis has been variously estimated from 7 to 25 per cent. During the Korean conflict the incidence of homologous serum jaundice in soldiers receiving both blood and plasma was vastly increased over that of World War II, being roughly 20 per cent. With blood alone, the incidence was only 4 per cent. *Estimates are that one out of every 1,400 to 5,000 patients receiving a blood transfusion dies of hepatitis.* The possible occurrence of homologous serum jaundice in the recipient of a transfusion is a calculated risk which must be taken. It is the main reason against the unnecessary usage of transfusions. All precautions directed at donor screening as well as treatment of whole blood and blood products (e.g., irradiation, beta-propriolactone, and nitrogen mustards) have to date been disappointing. The use of serum transaminase levels among donors has been analyzed by Bang and his associates[7] and found to be helpful but impractical by virtue of the elimination of one third of the available donors. This fact makes its universal acceptance limited.

Another type of untoward reaction to blood is that of the circulatory overload. It is this category that requires the physician's closest scrutiny, for in no other category is he personally more responsible. The patient suffering from chronic blood loss with a relatively normal blood volume must be differentiated from those with acute exsanguination and severe reduction of blood volume. In the latter group, rapid replacement is mandatory and well tolerated, while in the former it may well be fatal by virtue of overloading the circulation.

Anemia alone is not a significant justification for transfusion. Crosby has stated that in individuals leading a sedentary life 10 grams of hemoglobin is ample, and the bed-fast patient may be comfortable with as little as 5 to 6 grams.[8] Circulatory overload by indiscriminate transfusion is not infrequently seen in elderly patients with poor cardiac reserve and may result in pulmonary edema and death. This is the outcome when the physician attempts to bring the hemoglobin back to normal in a *chronically* anemic, elderly patient. Patients requiring rapid replacement therapy and those in or near the state of shock, must be distinguished from those with chronic blood loss who cannot tolerate such massive replacement. A carefully taken history and examination of peripheral blood for evidence of chronic blood loss should help to distinguish the two. The use of packed red blood cells, morphine, and atropine may be effective therapy for the congestive heart failure seen in the overloaded patient.[9]

Another type of transfusion reaction is that concerned with bacterial contamination of whole blood and whole blood products. The ensuing bacteremic shock carries with it the greatest mortality rate of all the untoward transfusion reactions.[10-13] Actually bacterial contamination of blood is quite a common occurrence with an incidence of from 1 to 6% of total blood collected, even under the best aseptic conditions.[1] These organisms are most commonly gram positive cocci and diphtheroids which result in little more than simple febrile reactions. Cold growing, saprophytic gram negative rods have been implicated as the etiological agents in bacteremic shock. The majority of these organisms may thrive in the cold using the citrate in stored blood as a carbon source, and in some cases even deplete the blood of this anticoagulant causing clotting.[14,15] It is their endotoxin which results in the erythremic or "red shock" seen in this type of reaction. There are case reports with death following the administration of as little as 25 cc. of contaminated blood.[11] Vasopressors and steroids have been the most effective agents used in treatment to date. Antibiotics have little effect on the organism, most of which are dead or non-visible.

Lastly, in a composite group, the more uncommon varieties of transfusion reactions may be briefly outlined. In the so-called *plasma reaction,* febrile response is seen following the infusion of plasma in patients who previously required multiple transfusions.[16,17] Treatment

is simply the transfusion of packed or washed red cells. The *febrile response* to *white cells,* which can be avoided by giving "buffy coat" free red cells, has been noted by Brittingham and Chaplin.[18] Finally, the *"platelet wash-out phenomena,"* a hemorrhagic catastrophe resulting from the use of large quantities of stored blood virtually free of functioning platelets has been reported.[19,20]

The best protection from all of these untoward reactions is the avoidance of unnecessary transfusions of blood and blood products, unless the indications are clearly present. However, assuming that blood is needed and will be life-saving, certain precautions should be taken to prevent these untoward sequelae.[21] Blood should be given at a very slow rate, especially for the first 50 to 100 cc's. In this manner, any initial signs of hemolysis or bacterial reaction may be detected after only a small quantity of blood has entered the patient. In addition, patients receiving blood should be watched very closely. This means non-emergency transfusions should ordinarily be given only during the day, when the nursing and resident staffs are present, so that in case of a reaction, steps may be taken immediately. If a transfusion reaction does occur, if the patient is febrile, chilly, complaining of nausea, backache, malaise or allergic symptoms, the immediate steps to be taken are as follows: (1) blood should be stopped as soon as these objective or subjective signs are noted; (2) a urine specimen should be obtained and grossly examined for the typical "Coca-cola" color of hemoglobinuria, and if need be, laboratory examination with benzidine reagent for the presence of hemoglobinuria should be done. It is important that this be done immediately, for subsequent specimens may no longer contain hemoglobin. In addition, a blood specimen should be obtained from the arm opposite that in which the blood was transfused. It is advisable to use a large needle thus avoiding technical hemolysis. The serum collected in this manner is then sent to the blood bank for re-checking the crossmatch, as well as testing for the presence of hemoglobinemia. If any incompatibility is noted, antibodies should be characterized and steps taken so that further mismatchings do not occur. If there is any question of contamination of the blood or blood products, smears of the whole blood remaining in the donor set should be made and stained, most conveniently with methylene blue or Gram's stain. Blood cultures should also be taken. However, in the bacterial contamination of blood, as previously mentioned, it is the endotoxin of the bacterial "corpses" which leads to the reaction and most of these bacteria are not viable.

The etiological agent responsible for the transfusion reaction should be ascertained as rapidly as possible and therapy directed at this source. Thus in the hypersensitive reaction, antihistamines should be used. If hemolysis has taken place, fluid intake and output should be carefully recorded. If an "overload reaction" has occurred, steps should be taken to treat the ensuing congestive failure.

Once again the best therapy for transfusion reaction is the avoidance of the unwarranted transfusion. Finch[1] has noted that most women under 45 years of age are transfused unnecessarily. The percentage of these transfusions that are *immediately* lifesaving have been estimated to be less than 1 per cent. The British Consulting Pathologist Committee states, "It appears unjustified to place any patient at a risk for just one pint of blood,"[22] yet in most medical centers 45 to 50% of the patients transfused received but a single unit of blood. Chown[23] has speculated that over 50% of all transfusions are unnecessary. Again, in Finch's opinion, the proper use of the transfusion could save as many as 2 million units of blood in the United States alone, and could prevent as many as 400 to 600 deaths annually. This figure was based on the annual transfusion mortality of 1 death per 5,000 units of blood transfused, or an incidence compatible to that of the risk of an appendectomy or the induction of general anesthesia. With increasing hospital costs, many physicians seek an expedient and treat such conditions as pernicious anemia, iron deficiency anemia, etc., with transfusions, in order to shorten their patient's period of hospitalization. Crosby[8] refers to the stenographic type of obstetrical transfusion practices whereby a stenographer types out the laboratory requests, and "when the obstetrical patient flunks her hemoglobin test, the secretary types out a transfusion request." When questioned con-

cerning the justification of giving a single unit of blood, most physicians and surgeons answer in the following manner. "I feel better when blood is running," "It improves wound healing," "It will help my patient fight infection," or "I always use blood when I operate."

Today, with litigation concerning the responsibility of persons giving and processing blood and blood products becoming even more prevalent, liability is falling more and more heavily on the physician as well as the hospital. As Cantor[24] has pointed out, "Even if no negligence could be proved . . . an action for damages would lie, if the patient could prove that the transfusion was not indeed indicated medically." This being the case, one must agree with Crosby's[8] analogy of the indiscriminate use of blood, which portrays the doctor playing Russian roulette with bottles of blood instead of a revolver. "The odds are in the physician's favor that nothing will go wrong, but it is the patient who takes the risk."

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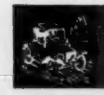

25 YEARS AGO

Immunological Applications of Placental Extracts.*

"A number of investigators have found that the umbilical cord blood of infants contain certain antibodies in amounts commensurate with those in the maternal blood stream. This would indicate that the immunity of the newborn infant to some of the infectious diseases is derived in part by placental transmission of antibodies from the mother. Protein extracts composed of the globulins derived from the human placenta and the blood contained in it have been prepared and have been demonstrated to contain diphtheria and scarlet fever antitoxins, and antibodies which neutralize poliomyelitis virus and protect exposed, susceptible children against measles.

"In the present communication we desire, first, to review the progress which has been made in studies to determine the practicability of immunological application of placental extracts, particularly in the prevention and modification of measles, and second, to report investigations which indicate that the immune bodies of placental extracts may be effective following oral administration. The tests of the material following oral administration have been made largely by the determination of immunity to scarlet fever as measured by the Dick test.

Distribution of Antibodies in Fractions of Placental Extracts

"In the preparation of placental extracts, normal placentas from non-syphilitic and non-toxic mothers were collected in sterile containers and were pooled in lots of eight to 50 placentas. The organs were ground in a meat chopper and extracted with 4 per cent salt solution. The saline extracts contained fetal blood, placental tissue proteins, and some maternal blood. After the saline extracts had been centrifugated to free

*McKhann, C. F., Green, A. A., Eckles, L. E., and Davies, J. A. V.: Immunological Applications of Placental Extracts: Effectiveness by Oral Administration, Ann. Int. Med. 9:388, 1935.

them of blood cells and tissue debris, the globulins were separated by precipitation with half saturated ammonium sulphate. . . .

". . . Nevertheless, the separation of the individual fractions was not complete inasmuch as some overlapping of fractions occurred. Fraction S represented largely pseudoglobulin, while fractions P_1, P_2 and TG represented euglobulins, the last probably derived from the placental tissues inasmuch as it was present in negligible amounts in placental blood serum. For immunologic tests, the same protein fractions from the separate extractions were usually pooled.

"Determinations of the association of different antibodies with the various globulin fractions showed that the diphtheria and scarlet fever anti-bodies were present only in the more soluble globulins (fractions S and P_2) while the measles and poliomyelitis antibodies were present in all fractions—poliomyelitis certainly and measles probably—even in the large molecule globulins derived from tissue proteins, TG. This was thought to indicate an association of the immune substances active against the virus diseases, poliomyelitis and measles, with tissue proteins, as well as with blood proteins, in contrast to scarlet fever and diphtheria antitoxins which were not demonstrable in some of the tissue proteins. . . .

Reactions

"The intramuscular or subcutaneous injection of placental extract has been accompanied occasionally by moderately severe reactions. The character of the reactions has seldom been that of specific sensitization. Among the 1300 patients who have received the extract there were three cases of urticaria coming on within an hour and subsiding in 24 hours, apparently accelerated reactions of allergic type. . . . Reactions have consisted of local inflammation accompanied at times by fever. Suppuration has not occurred, nor has a local reaction lasted longer than three to four days. Febrile reactions characterized by temperatures as high as 103° F. have lasted as long as 24 hours. Among 1232 cases, mild local reactions occurred in 312, or 25.3 per cent, while more severe local reactions occurred in 49, or 4 per cent. Febrile reactions occurred in 182, or 14.8 per cent. . . .

Immunizing Effect Following Oral Administration

"Because of the short duration of immunity following the injection of the extract and the desirability of avoiding the unpleasantness of repeated injection, consideration has been given to trial of other methods of administration. . . .

"The immunizing effect of placental extract by oral administration has been studied by observing the effect of ingestion of the extract on the Dick test of patients susceptible to scarlet fever, and the effect of the extract in the prevention and modification of measles in non-immune children intimately exposed to the disease. . . .

"The immunizing effect of placental extract following oral administration could most readily be followed by testing for absorption of the scarlet fever antibody inasmuch as placental extract by intramuscular injection had already been demonstrated to render susceptible patients negative to the Dick test. Furthermore, not only could the reversal of the Dick reaction be readily determined, but the duration of such a reversal could be followed. In the series of tests placental extract in total amounts ranging from 9 to 20 cc. varying somewhat with size and age of the child, was administered in several doses of two to five cc. each in ice-cold water on an empty stomach at least one hour before meals, according to the technic described by Mills for the absorption of the blood coagulant derived from lung tissue. A Dick test performed 48 hours before the beginning of the administration of serum had been strongly positive in each person subjected to the test. . . .

Summary

"Protein extracts composed of the globulins derived from the human placenta contain diphtheria and scarlet fever antitoxins, and antibodies which neutralize poliomyelitis virus and protect exposed, susceptible children against measles.

"The extracts can be prepared on a large scale and have been found useful in the prevention and modification of measles. Over 1300 children have received injections of the material. A small percentage of patients who have received injections of the extracts have had moderately severe local or general reactions.

"Tests of the immunizing effect following oral administration of placental extract have been made.

"Twenty-two children with positive Dick tests have been rendered Dick negative by the oral administration of the extract in cold water on an empty stomach. The duration of the negative stage has been variable but has been prolonged to as much as 18 days, if iced alkaline carbonated water was used as the vehicle. The reversal of the Dick test could not be obtained with any regularity in adults.

"Tests of placental extract by oral administration in the prevention or modification of measles suggest that placental extract by mouth may be effective in this disease. Oral administration of the extract has not been accompanied by reactions."

SOUTHERN MEDICAL NEWS

ALABAMA

Dr. Edmund W. Rucker, past member of the Council of Southern Medical Association, died on August 8. Dr. Rucker joined the association in 1916 and had almost a perfect record of attendance at annual meetings since that time. He was Councilor from Alabama, 1938-1942, Vice-Chairman of the Section on Ophthalmology and Otolaryngology in 1953 and Chairman of the Section in 1954.

An instructive three day sectional meeting of the

New members of the American Academy of General Practice are Dr. Rayford A. Smith, Sr., Monroe-

American College of Surgeons will be held in Birmingham, Alabama, at the Dinkler-Tutwiler Hotel, Jan. 16-18, 1961. Dr. Arthur I. Chenoweth, Associate Professor at the Medical College of Alabama, Chairman, and his committee have planned a program of interest to general surgeons and to specialists. For information about the program and registration, write Dr. William E. Adams, American College of Surgeons, 40 East Erie Street, Chicago 11, Illinois.

Dr. Robert C. Berson, Vice-President and Dean of Medicine at the University of Alabama Medical Center, has been reappointed to serve on the National Advisory Council on Health Research Facilities.

DISTRICT OF COLUMBIA

Dr. William P. Herbst, an Associate Councilor from the District of Columbia to Southern Medical Association, has been elected President of the D. C. Division of the American Cancer Society. Other officers of the Society include Dr. Harold W. Krogh, a Vice-President; and Dr. C. Roger Kurtz, Secretary.

Dr. Preston A. McLendon, member of the Editorial Board of the *Southern Medical Journal* and an Associate Councilor from D. C. to Southern Medical Association, has been reappointed to the District School Board by a committee of District Judges for a three year term.

Dr. Arcangelo D'Amore has been named to the Mental Health Commission of the District of Columbia by the District Court Judges.

Dr. Seymour J. Rosenberg was recently elected First Vice-President of Help for Retarded Children, Inc.

New members of the Medical Society of the District of Columbia are Drs. Francis W. Blackwell, Peter W. Conrad, Thomas M. Foley, Jr., John C. Kenealy, John F. Maher, Louis E. Perraut, William W. Saunders, Paul D. Sullivan, Jr., Benedict Vicas, and William P. Waters.

FLORIDA

The Florida Diabetes Association will hold its annual meeting on Oct. 27 and 28, 1960, at the Balmoral Hotel, Bal Harbour, Miami Beach. The fee for non-members is $25.00, for members, $15.00. Reservations should be mailed to Dr. George F. Schmitt, Secretary-Treasurer, 30 S.E. Eighth Street, Miami.

Dr. Walter W. Sackett, Jr., Miami, has been elected President of the University of Miami General Alumni Association.

Dr. Ben J. Sheppard, Coral Gables, has been elected Judge of the Dade County Juvenile and Domestic Relations Court.

Officers of the Suncoast Heart Association include Dr. Sidney Grau, St. Petersburg, President; Dr. Charles H. Lasley, Clearwater, Second Vice-President; and Dr. Charles L. Rast, Jr., St. Petersburg, Third Vice-President.

Dr. Sanford A. Mullen, Jacksonville, is President of the Duval County Division of the Arthritis and Rheumatism Foundation.

GEORGIA

Dr. Jack C. Norris, Atlanta, Second Vice-President of Southern Medical Association, has been appointed Honorary Consultant to the Armed Forces Institute of Pathology, Washington, D. C.

Dr. Warren A. Taylor, Thomasville, has been elected Vice-Chairman of the American Red Cross South Atlantic Regional Blood Program.

Several Medical College of Georgia administrative and departmental appointments have been announced. Dr. Walter G. Rice has been appointed Dean of the School. Dr. William F. Hamilton, Chairman of the Department of Physiology, has retired as departmental chairman, but has been appointed Professor Emeritus, and will continue with his cardiovascular research projects at the school. Dr. Philip

Continued on page 68

ERRATUM

In the September issue, page 1146, under the subhead Summary, paragraph 1., the last sentence should read "The side effects were not significant" instead of "The side effects were significant."

INSTRUCTIONS TO CONTRIBUTORS

Exclusive Publication: Articles offered for publication must be contributed solely to the Southern Medical Journal.

Manuscripts: Manuscripts should be original copy, typewritten, double-spaced, with wide margins. Because of lack of space, it is necessary to limit the number of bibliographic references to twenty. Footnotes and references should conform to the following style:

1. Doe, J. E.: What You Should Know about It, South. M. J. 50:711, 1950.

Illustrations: Black and white glossy prints, preferably 5 by 7 inches, and drawings in India ink on white paper are required. The author's name, number and indication of top, if doubtful, should be attached. Necessary plates not exceeding six, or one and a half pages, will be furnished by the Journal.

Reprints: Reprints are available at publisher's cost. An order form will accompany author's galley proof and should be returned with the galley to the Editor.

Book Reviews: Books and monographs submitted for review should be mailed to the Editor. Acknowledgment will appear in the Journal. Selection rights reserved.

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ST. LOUIS

Southern Medical Association

Fifty-Fourth Annual Meeting

Oct. 31 - Nov. 3, 1960

St. Louis began as a fur trading post hacked out of the wilderness in 1764. Later it became the gateway to settlement of the West. Today it is the crossroads of the nation—a busy metropolis that is rebuilding and modernizing constantly.

The city proper starts midway between Missouri's north and south borders and covers some 61 square miles. Within these limitations are some 868,000 citizens (1954 estimate)—making St. Louis the nation's eighth largest city.

Surrounding St. Louis by land is St. Louis County. Legally the two are separate entities, but by culture and economy they are one. The county covers 497 square miles. In this fast growing county are 96 municipalities and 484,000 persons.

City and county boast a variety of metropolitan sights and entertainment, activities, boulevards of trade, culture, industrial might and history under three flags.

In the middle of the city, near its river front birthplace, is "Downtown," the main business and shopping section. Residential districts fan out to the north, west and south and into the county. Industry, previously staying near the river front, has spread into several outlying locations. St. Louis, the in-

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Article prepared by Sandra S. Bass, staff of *Southern Medical Journal*. Among the sources of information were booklets and papers by the Public Relations Department of the Chamber of Commerce of Metropolitan St. Louis, St. Louis Convention and Publicity Bureau, the Missouri State Division of Resources and Development, and the St. Louis Medical Society.

dustrial giant, is the ninth largest manufacturing center in the U. S. Industries in the area produce 357 out of a possible 448 classes of products listed by the U. S. Bureau of the Budget—about the broadest industrial base of any city in the nation.

St. Louis is served by three transcontinental highways and two important north-south routes; by 22 bus lines; by 18 trunk rail lines; and by 7 airlines.

The metropolis on the Mississippi is truly a hub.

Out of the Past

The site of St. Louis was occupied in prehistoric times, and traces of early inhabitants have been unearthed in leveling the mounds which they left. These burial mounds provide a nickname, "Mound City."

The first white settlement in Missouri was the Jesuit Mission of St. Francis Xavier at the mouth of the River des Peres (River of the Fathers), which is within the boundaries of present-day St. Louis. That was in 1700, but by 1703 the mission was abandoned.

The real establishment of St. Louis came more than half a century later when the French fur traders from New Orleans began traffic in the area. Maxent, Laclede and Company was granted exclusive rights to the Indian trade in the Missouri Valley and all the country west of the Mississippi.

In December 1763, the junior partner of the firm, Pierre Laclede Liguest, or Pierre Laclede as he was known in St. Louis, selected a site for a trading store settlement that became the village of St. Louis.

On Feb. 14, 1764, a party of workmen, "The First Thirty," under the command of 13 year old Auguste Chouteau, Laclede's stepson, arrived to lay the foundation of the post. The village was laid out with five streets on the water front; within six months, 40 families were there. The settlement was named the Village of St. Louis in honor of Louis IX, crusader king of France who was sainted.

This wilderness region had been French since La Salle claimed it in 1682. But to keep England from gaining the Louisiana area (including St. Louis), France ceded the territory to Spain in 1762. News of this transfer did not reach Laclede until shortly after St. Louis' founding. However, Spanish officials did not arrive at the capital of Upper Louisiana until 1770. Under Spanish rule, many French settlers were appointed to office. The main change was simply one of official language, and the French continued for years to hold the purse strings in St. Louis.

Fur Trading Center

Five years after its founding, St. Louis had a fur trade of $80,000 annually and became and remained the fur trading center of the West. Two years later, when the exclusive fur trading privileges where withdrawn from Laclede's company, the way was open for an influx of new settlers, merchants and adventurers. The village's prosperity was interrupted only briefly by the Revolutionary War. In May 1780, a British-Indian force of 1,200 attacked. The French, Spanish and American settlers were successful in repulsing the attack to score a significant victory of the American Revolution.

Following the Revolution, St. Louis and river traffic boomed. For some time pirates swarmed the Mississippi, plundering and murdering until they were driven away by a force of tough river boatmen who combined their brawn to oust the pirates. The growing fur trade, which by 1804 was valued at $203,750 annually, made St. Louis the center of wealth and culture in the upper river valley.

In 1800, Napoleon forced Spain to return Louisiana, but no official transfer was made and Spanish officials remained in charge at St. Louis. But the placid settling life of St. Louis was at the same time disrupted and revitalized in 1803 when Napoleon sold the Louisiana Territory to the United States. St. Louis was part of this Louisiana Purchase and the site of a ceremony transferring Upper Louisiana to the United States on March 9, 1804. Promptly the westward movement began with St. Louis as the gateway and capital of the vast, rich, new half of the continent. Freebooters, gamblers, explorers, and political and religious rebels overran the town and boasted, "God will never cross the Mississippi."

Yet amid the brawling, characteristic of raw frontiers, St. Louis became the starting point of military, scientific and exploratory expeditions. The Lewis and Clark Expedition of 1804 which opened the Northwest started

from the city. St. Louis boomed into a lively little Western city and became the base for other settlements and commercial ventures. Captain Meriwether Lewis became governor of the new U. S. district at St. Louis in 1807 (later, William Clark also held the post).

Signs of substantial community life appeared: in 1808, the *Missouri Gazette,* first newspaper west of the Mississippi, published its initial edition; that same year, St. Louis was incorporated as a village with 1,400 population; the river flatboat travel southward grew steadily as the Missouri Valley farmers sent the products of their rich fields to New Orleans; and St. Louis assumed the political leadership of the state, playing host both to the territorial legislature and later to the constitutional convention.

As the fur trade grew and prospered the famous Missouri Fur Company was organized in 1809, and, in 1822, John Jacob Astor sought to compete for the $300,000 per year trade by opening a St. Louis branch, but the local firm continued to control the Missouri Valley business.

The Golden Age of Steamboats

The first sign of the golden age of river steamboating arrived in St. Louis on Aug. 2, 1817, when the Zebulon M. Pike, a crude, early steamboat, pushed its way upstream from Louisville to become the first steamboat ever to reach St. Louis. But soon a huge flotilla of steam-propelled vessels replaced the flatboats and keelboats to make the city a hub of inland water trade.

St. Louis was incorporated as a city in 1823, two years after Missouri became a state. By 1830, the city had a population of 4,977 and it was 44th in size among U. S. cities. Three years later, it was 20th in size.

The progress of industry was accelerated as a demand for finished goods came with the rise in river transportation. Small home shops of craftsmen grew into the industrial enterprises which are the foundation of modern St. Louis' powerful and varied industry. Property values went up correspondingly, jumping from about one million dollars in 1818 to over 16 million in 1847.

Political events in Europe provided St. Louis with its third wave of frontiersmen as large numbers of German professional men and scholars, skilled tradesmen and artisans, dissatisfied with conditions in their homeland, began moving to Missouri in 1832. These stable and cultivated people brought to the midwestern community new interest in education, music, art and industry which contributed much to its development.

Recalling the days when river transportation and the steamboat were synonymous is the Goldenrod Showboat, the last of its paddlewheeler generation. Despite the replacement of the steamboats by more prosaic craft, St. Louis has retained this traditional attraction of the river. The old Showboat is permanently anchored at the city's waterfront to divert natives and visitors nightly with the amusing melodramas of a bygone era. At every performance booing and hissing mingle with the lapping sounds of the water against the sides of the old flat-bottomed boat.

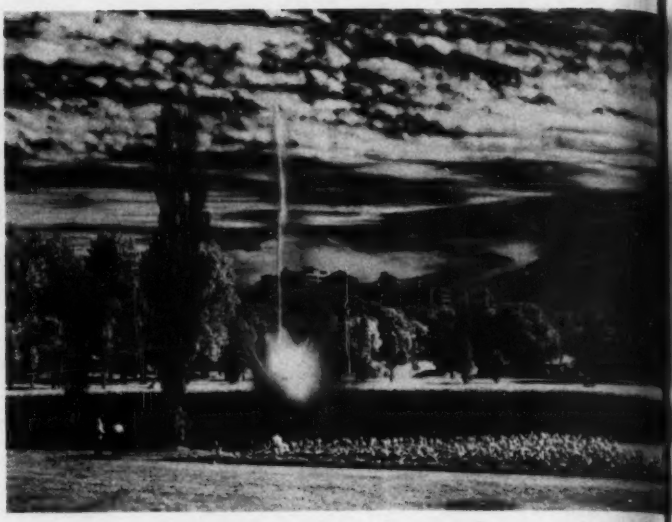
The city suffered a setback in 1849 when a fire aboard a river boat spread to the city and destroyed 15 business blocks and many of the city's oldest buildings. An epidemic of cholera followed the holocaust. However, the citizens refused to let these disasters daunt their spirit—new structures multiplied. St. Louis was the Queen City of the West—a center for manufacturing, shipping and fur trading. Culture was not neglected: St. Louis University had been established in 1832; a public school system came in 1850 and Washington University in 1853. The railroads reached the city in 1852.

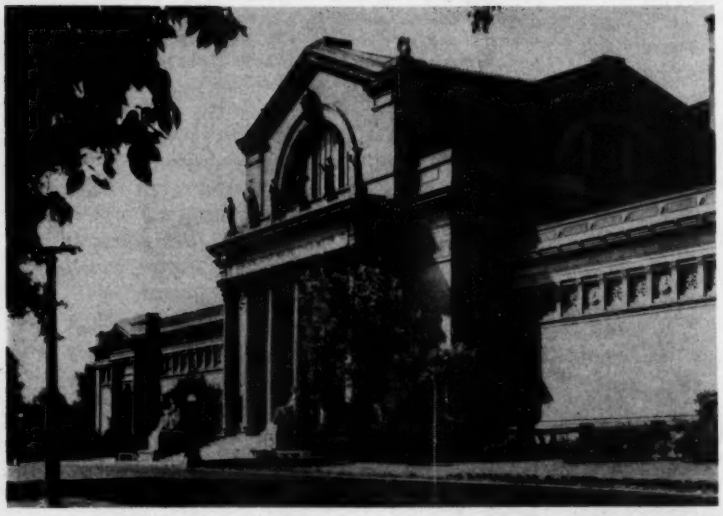
The Civil War choked river trade so trade development turned inland: rails spread east and west. St. Louis turned from the steamer to the locomotive and continued its growth. The depression of 1873 affected St. Louis severely, as did the strikes of 1877, but with their settlement a period of peaceful growth began. During this period Eads Bridge and the first Union Station were completed;

Continued on page 1312

FOREST PARK

Round Lake invites relaxation in Forest Park, the second largest city park in the United States. It includes the Zoo, Jewel Box, Municipal Theater, Jefferson Memorial and Art Museum; lakes, lagoons, lily pools, fountains, foot and bridle paths, two golf courses and 36 tennis courts. It has picnicking, boating, skiing, ice skating, sledding and fishing facilities. Forest Park was part of the site of the 1904 World's Fair. Reminders of those days are the statue of St. Louis, Art Museum, lagoons, pavilion and the world's largest apiary.



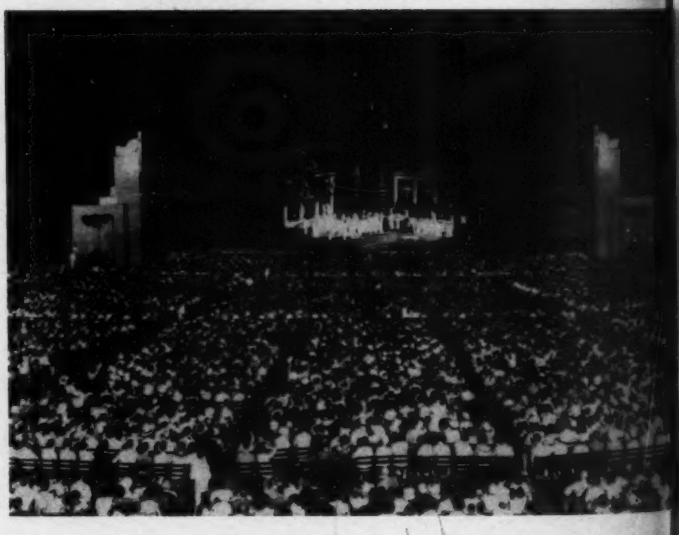


ST. LOUIS ART MUSEUM

The St. Louis Art Museum, which is ranked as one of the four finest art museums in the nation, boasts two almost unique characteristics. It is a city tax supported metropolitan museum and it is situated in a setting of incomparable natural splendor high above Forest Park on "Art Hill." Erected during the 1904 Louisiana Purchase Exposition as a permanent home of art, the museum has spacious, well-lighted facilities for exhibiting to best advantage its nine million dollar collection of paintings, casts, sculpture, marbles, drawings, architecture, period rooms and other art objects. Admission to the museum is free.

ST. LOUIS MUNICIPAL OPERA

The world famous St. Louis Municipal Opera, popularly called the Muny Opera, is America's oldest and best known summer open air musical theater. Located in Forest Park, this civic institution provides the finest in elaborate outdoor musicals played entirely beneath the stars against a backdrop of giant trees. Municipal Opera boasts the world's largest outdoor stage, 90 feet by 115 feet, which includes a 48 feet in diameter revolving stage in the center that can make a complete scene change in about 90 seconds. The layout, in a natural bowl, covers 5 acres and is valued at $3,000,000. By city ordinance, all profits go to improve the theater (it has never lost money).



ST. LOUIS ZOO

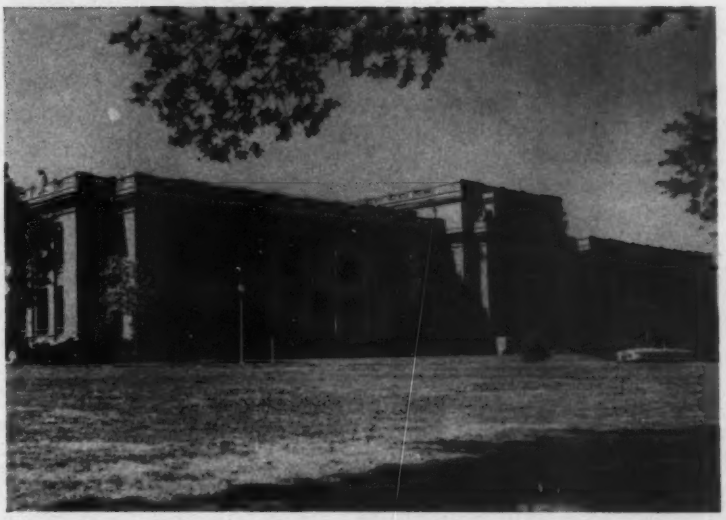
The St. Louis Zoo, begun in 1913, houses one of the world's most outstanding collections of mammals, birds, reptiles and amphibians. The Zoo occupies an 83 acre site in Forest Park. The nearly 2,000 specimens are viewed annually by nearly 3,000,000 persons. Planned to show the animals in natural settings, the Zoo has pioneered in the construction of replicas of natural geological formations. Seen in such surroundings, visitors achieve a sense of intimacy with the animals, as if they were viewing them in their native habitat, but safely and at close range. The Zoo is free to the public and open daily all year round.

JEWEL BOX

"A fairyland house of glass enclosing unbelievably magnificent flower arrangements" is only a modest description of the beautiful Jewel Box in Forest Park. This cathedral of waterfalls and flowers is a modern steel and glass conservatory for displays of flowers and plants grown by the city. Display motifs change with the seasons. Notable scenes are lilies at Easter, a gigantic floral clock and numerous rose gardens in the summer, chrysanthemums in November, and poinsettias in December.

JEFFERSON MEMORIAL

The Jefferson Memorial Building, opened in 1913, was the first public memorial to Thomas Jefferson. Here in Forest Park is the headquarters of the Missouri Historical Society with its fine historical museum, including the Charles A. Lindbergh collection of more than 10,000 items (much of the equipment carried on his 1927 Paris flight). The Memorial also contains an educational department for children and a research library which has an extensive collection of books and manuscripts pertaining to the state and region as well as one of the largest collections of Jefferson manuscripts in the United States.



Continued from page 1309

trains brought in coal from Illinois fields; immense industrial expansion followed. Between 1860 and 1880, the city's population doubled, reaching 350,000.

The city seceded from St. Louis County in 1876 and adopted its new charter. Its prosperity was relatively stable, with diversified industry and railroads as a solid base.

Louisiana Purchase Exposition

St. Louis began the 20th Century with the Louisiana Purchase Exposition, the World's Fair of 1904. At a cost of $50,000,000, some 1,272 acres of Forest Park were transformed into a magical city. Forty-three states, five territories and 62 foreign countries had exhibits. In its seven months, the Fair attracted almost 20,000,000 persons who saw marvels few had ever seen before. Fifteen gleaming palaces held a wealth of exhibits. Seventy-five miles of walks and roadways crisscrossed the grounds in every direction. Twelve hundred statues and 1,500 buildings were scattered about over the area. The vast, opulent spectacle more than justified the still popular musical invitation: "Meet Me in St. Louis, Louis—Meet Me at the Fair."

St. Louis prospered from the great success of the Exposition. Not only did the Fair backers make money on their investment, but the Fair was the scene of the 1904 Olympics. The city acquired an improved water system and an art museum, and the ice cream cone was invented. Spectators saw the first demonstration of the Bell method of transmission of speech by light wave—forerunner of marvels of our electronic age.

World War I caused feverish expansion in the city. Five St. Louis pilots offered themselves and their old planes for military service in 1916; thus was established the first aeronautics corps of the Army.

St. Louis businessmen backed the non-stop flight to Paris of Charles A. Lindbergh, a pilot on an air mail route between St. Louis and Chicago. Alone Lindbergh crossed the Atlantic on May 20, 1927, in his monoplane, "The Spirit of St. Louis." His feat gave final proof of the airplane's practicability and dependability.

St. Louis today operates under a charter approved in 1914. Being separate from a county, the city has a dual form of government headed by a mayor but with both a sheriff and chief of police. The modern "Spirit of St. Louis" has been shown in bond issues voted for huge improvement programs (because the city cannot expand geographically, improvement means rebuilding).

What to See And Do

Sportsman's Town

The St. Louis area offers much in facilities and activities. In city and county are public parks, lakes, country clubs, swimming pools, 60 bowling establishments; facilities for fishing (Meramec River, the county's southern boundary, is one of the state's large fishing streams), tennis, boating, skating and picnicking. Golf courses, with grass or sand greens, and driving ranges galore, give links enthusiasts a wide choice. Bridle paths in extensive Forest Park are a favorite with many who like an early morning canter.

There are professional sports—boxing, wrestling, football, car racing, and soccer. Home of the famed Cardinals (where Stan, the Man, Musial performs) St. Louis enjoys big league baseball at Busch Stadium. The National League Cardinals have won 9 league championships and 6 World Championships. The city is home court for the St. Louis Hawks, professional basketball team, and frequent winners of the Western Division title. In college sports, Washington and St. Louis Universities and Concordia and Eden Seminaries participate. Special events, including bowling, tennis, golf and swimming meets, bring sports stars into the city. In addition, St. Louis and several municipalities in the county sponsor complete athletic programs at various parks.

Cultural City

From its early days, St. Louis has welcomed the arts: traveling troupes of actors, showboats, band concerts in the park, and frontier artists.

The St. Louis Symphony Orchestra, founded in 1880, is the second oldest in the U. S. and is one of the best. This assembly of 85 artists of the first rank in American musical circles is also internationally famous. During the winter season the Orchestra gives some 60 concerts in Kiel Auditorium.

Bordered by Market, Chestnut, 12th and 14th streets, Memorial Plaza is the result of St. Louis' first urban redevelopment project. This beautiful area overlooks Kiel Auditorium, City Hall, Soldiers' Memorial, Municipal Courts Building, Central Public Library, Federal Courts Building, and the Post Office. In addition, these seven landscaped blocks, in the official heart of the city, contain fountains, trees and shrubbery and provide a peaceful spot in the great metropolis. Beyond the civic center rise the stores and office buildings of the downtown business district.

The world renowned St. Louis Municipal Opera is discussed on page 1310.

A Little Symphony plays on the Washington University campus. Grand opera is featured each spring by the Civic Grand Opera Association of St. Louis.

Two theaters present stage plays. First run movies are featured in the downtown and midtown districts, and other theaters bring in the best of foreign made films. Amateur theatrical groups are active. Special concerts and other programs, often featuring famous persons, are given periodically. Hotels and night clubs bring in star entertainers.

Historical Points of Interest

A 37 block area on the river front is the cradle of St. Louis—now it is a part of the National Park Service, a memorial to Thomas Jefferson, the Louisiana Purchase and westward expansion of the nation. This area includes the Old Courthouse, Rock House (oldest building in St. Louis), and Old Cathedral.

From this area the Lewis and Clark Expedition left on May 14, 1804; they returned Sept. 26, 1806, to a big celebration. Near the foot of Walnut Street, a monument marks the spot where "Laclede's Village" was born. The Spanish Government House once stood at Second and Walnut; there, on March 9, 1804, the Upper Louisiana Territory was officially transferred to the United States. Here began the western trails route.

The private Mercantile Library, founded in 1846, has a portion of Chouteau's journal describing the founding of the city.

The Academy of Science of St. Louis contains exhibits of archaeology, natural history, minerals and air transportation.

The Museum of Transportation is the nation's only public museum devoted exclusively to all forms of transportation. On a 54 acre tract are old locomotives, cars, trolleys, busses and other vehicles.

Maryville College of the Sacred Heart, opened in 1827, is marked by architecture reminiscent of French convents. Webster College has an observatory with a 12 inch reflecting telescope. Both are connected with St. Louis University.

Eden Theological Seminary is operated by the Evangelical and Reformed Church. Concordia Seminary, dating to 1839, is the largest Protestant seminary in the U. S. It is operated by the Lutheran Synod of Missouri.

The Missouri Botanical Garden, known as Shaw's Garden, contains the largest collection of plant life in the western hemisphere. It ranks second only to the Kew Gardens of England and is renowned internationally for its botanical species and beautiful floral displays. A never ending variety of displays, both outdoor and housed in large conservatories, is to be seen. More than 11,000 species of plants from all climes and parts of the world are exhibited here. Founded by Henry Shaw, a St. Louis philanthropist, in 1860, the Garden is maintained by a private endowment left by him.

Milles Fountain is located in Aloe Plaza on Market Street. In the pool are 14 figures depicting in bronze the famous "Meeting of the Waters" (the Mississippi and the Missouri) as visualized in sculpture by Carl Milles. A young woman represents the Missouri, a young man the Mississippi. A system of underwater lights highlights the scene. In the background is pictured Union Station and its clock tower. St. Louis is known as the "Gateway to the West" and Union Station is the "Key" to this "Gate." Of castle-like architecture, the station houses the second largest rail center in the world. This nationally known landmark has served St. Louis since 1894. Eleven different railroads, representing all sections of the country, serve Union Station.

St. Francis Xavier (College) Church contains a stone said to have been used by Father Pere Marquette in saying mass. The oldest Protestant church organization in the West is Fee Fee Baptist, established near Pattonville in 1807.

Included among the parks are: Forest; Fairgrounds, begun in 1856 as a site for the annual St. Louis Agricultural and Mechanical Association Fair; O'Fallon, overlooking the Mississippi, offers a good view, as does Chain of Rocks (which also has an amusement park); and Lafayette, possibly the oldest park west of the Mississippi—it dates to 1836.

Kiel Auditorium

"The Mecca for conventions, shows and gala events" is an apt description for the Henry W. Kiel Municipal Auditorium, headquarters for SMA's St. Louis meeting. Under one roof in this stone building everything required for a smooth running convention is arranged and expertly supervised by hosts who are convention minded.

The Auditorium contains three large assembly centers—the great opera house with its beautiful stage; the stupendous convention hall; and the expansive exposition hall which reaches almost from the front to the back of the entire building—which is 493 feet over all.

Efficiently integrated are the ticket lobby, foyer, cafeteria and refreshment bar, four large assembly halls with stage, smaller committee rooms, completely appointed wash rooms, numerous office rooms, telephone booths—in fact, facilities for every function of convention management. It is one of the most modern and complete convention buildings in the entire architectural world, and the entire building is air conditioned.

The Auditorium is only three blocks from the Union Station and within easy walking distance of a large number of St. Louis' finest hotels. It can be conveniently reached by surface cars, bus lines and service cars, and there are ample parking facilities adjacent to it.

Hotels

The subtle art of making the visitor feel at home is the main concern of St. Louis hotels. Famous for their comfortable, tastefully furnished rooms, reasonable rates, attractive atmosphere, courtesy and hospitality are the more than 20 fine hotels in the City. All are well equipped with numerous facilities for the convenience of their guests. Whether the visitor wishes a simple room and bath or the most elegant suite—he will easily find the perfect accommodation to suit his requirements and budget. There are approximately 6,000 air conditioned rooms concentrated within an area of one square mile.

Geographically speaking, St. Louis meets you half way and hospitably speaking, St. Louis goes the whole way.

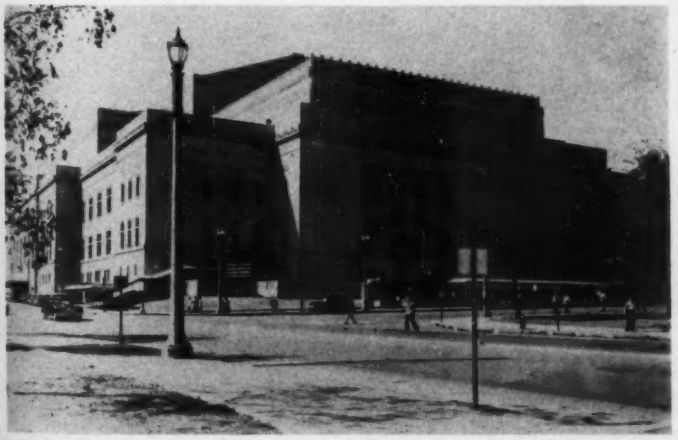
Medical St. Louis

St. Louis is one of the world's great medical centers. It has outstanding facilities for treating the sick, for medical research, and for training medical students. Its two medical schools, St. Louis University School of Medicine and Washington University School of Medicine, are among the finest in the nation. Affiliated with the former are three hospitals. The Barnes Hospital Group of seven hospitals, known as the medical center of the West, is associated with Washington University. City and county hospital facilities continue to grow with 62 area hospitals now having about 20,000 beds.

Early Medical History

When the "First Thirty" settlers arrived at the site of present-day St. Louis to prepare the location for habitation, there was no physician among them. If there were any doctors among the many arrivals in the next few years they did not remain in the primitive outpost long.

The first physician who was a permanent resident of the village was Dr. André Auguste Condé, previously post surgeon at Fort



KIEL AUDITORIUM
Headquarters for St. Louis meeting

Chartes. Gradually more doctors moved to St. Louis, one or two at a time.

An important medical event occurred in 1835 when Dr. William Beaumont arrived in the city. Beaumont had visited St. Louis a year earlier as an Army surgeon and he had already gained international renown by the publication in 1833 of his outstanding experiments on Alexis St. Martin. He enjoyed the largest private general practice in the city as long as he lived.

His presence, his work, and his accomplishments stimulated the other physicians, for within a year after his arrival the "Medical Society of Missouri at St. Louis" was organized. Beaumont was an early President (1841).

The first medical school west of the Mississippi River was established in 1836 as the Medical Department of St. Louis University, with Beaumont as Professor of Surgery.

Western medical education received another boost when Joseph Nash McDowell, nephew of Ephraim McDowell, moved to St. Louis after considerable experience in teaching anatomy and surgery. Arriving in 1840, he lost no time in organizing a new medical school. This college was known as McDowell's College and later as the Missouri Medical College. It was admitted as a department of Washington University around the turn of the century.

St. Louis Medical Society

The "Medical Society of Missouri at St. Louis," now the St. Louis Medical Society, was founded Jan. 7, 1836, with a membership of twenty. After meeting in as many as six different places, the Society at last moved into its own home in 1926. The auditorium seats 700 and there are several private meeting rooms, a large dining room and adjoining rooms for entertainment. The library contains more than 40,000 volumes as well as a valuable collection of rare old medical books and instruments.

But the progress of the Society in the advancement of medicine far surpasses its material acquirements. As early as 1840 it was represented at a convention from which, seven years later, sprang the American Medical Association. The St. Louis Society also called a convention which formed the Missouri State Medical Association. In 1922 the Women's Auxiliary was created.

From the beginning, the Society, while avoiding politics, has taken a lively interest in civic affairs. It has also given its active support to the health programs of the city and state.

The St. Louis Medical Society now numbers some 1,269 members.

St. Louis County Medical Society has approximately 414 members.

St. Louis—Ideal Convention City

Of such is Missouri's largest city—the ideal convention city as to location, accommodation and accessibility. St. Louis is truly one of the world's great cities, combining vast industrial and commercial facilities with a wealth of cultural, educational, entertainment and other advantages.

To many, St. Louis ranks first, not eighth.

APPLICATION FOR HOTEL ACCOMMODATIONS

Southern Medical Association

Saint Louis, Missouri

October 31-November 3, 1960

IMPORTANT: The Convention Reservation Bureau will make hotel assignments upon receipt of this official housing application provided that the application is properly filled out and all necessary information is given. In order that a fair distribution of accommodations can be made to the greatest number of members, all rooms will be assigned on a strictly "first come, first served" basis.

INSTRUCTIONS: *(A) Single rooms are limited in number. Please arrange to occupy double bedded or twin bedrooms if possible. No block reservations will be made.*

(B) Be sure to indicate your arrival time in St. Louis. Reservations will be held only until 6:00 p.m. of the day you indicate when you will arrive in St. Louis. Failure to notify the hotel of any last minute change in your arrival time may result in the cancellation of your reservation.

(C) Write the Convention Reservation Bureau, 911 Locust Street, St. Louis, if you wish to cancel the reservation or make any change in your reservation and NOT the hotel to which you were assigned. This will enable them to reassign rooms that have been cancelled.

(D) If the hotels of your choice are unable to accept your reservation, the Convention Reservation Bureau will make as good a reservation as possible elsewhere provided that all hotel rooms available have not already been taken.

Hotel	For one person	For two persons		2-Room Suite Parlor & 1 Bedroom
		Double Bed	Twin Beds	
CLARIDGE	$5.50-$ 8.00	$ 8.00-$10.00	$10.00-$14.00	$16.00-$18.00
DESOTO	5.50- 8.50	7.00- 10.00	8.50- 12.00	17.50
LENNOX	7.50- 13.00	9.00- 14.00	13.00- 13.50	20.50- 35.00
MAYFAIR	7.50- 13.00	9.00- 14.00	13.00- 14.00	21.00- 35.00
PICK-MARK TWAIN	6.50- 9.00	8.50- 11.50	10.00- 12.50	17.50- 27.00
SHERATON-JEFFERSON	8.50- 11.00	12.00- 14.50	13.85- 18.00	28.00- 49.00
STATLER-HILTON	8.00- 11.50	11.00- 14.50	13.00 -15.00	29.50- 36.50
WARWICK	5.50- 8.00	8.50- 12.00	9.50- 12.00	

CONVENTION RESERVATION BUREAU
SOUTHERN MEDICAL ASSOCIATION
911 Locust Street, Room 406
Saint Louis 1, Missouri

Please reserve the following accommodations for the Southern Medical Association Meeting, October 31-November 3, 1960:

Hotel Preference	Kind of Accommodations Desired
1st Choice.....	.....Single room at $.....to $.....
2nd Choice.....	.....Double room at $.....to $.....
3rd Choice.....	.....Twin bedroom at $.....to $.....
	.....2-Room Suite at $.....to $.....
	.....Other type .....
Arrival Date.....	.....hour.....a.m.....p.m.
Departure Date.....	.....hour.....a.m.....p.m.

THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Reservations cannot be made in any hotel unless two names are given for each double bedded room or twin bedded room. If this information is not given on your original application, the Convention Reservation Bureau must send you a card asking that you submit two names. This means unnecessary delay and lessens the possibility of assignment to the hotel of your choice.

Name of Occupant (s) (Please type or print)	Address
.....	.....
.....	.....
.....	.....

Individual Requesting Reservations
(Please type or print)

NAME.....

ADDRESS.....

CITY.....ZONE.....STATE.....

FIRST FOLD HERE

From:

_____

_____

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PLACE STAMP HERE

CONVENTION RESERVATION BUREAU

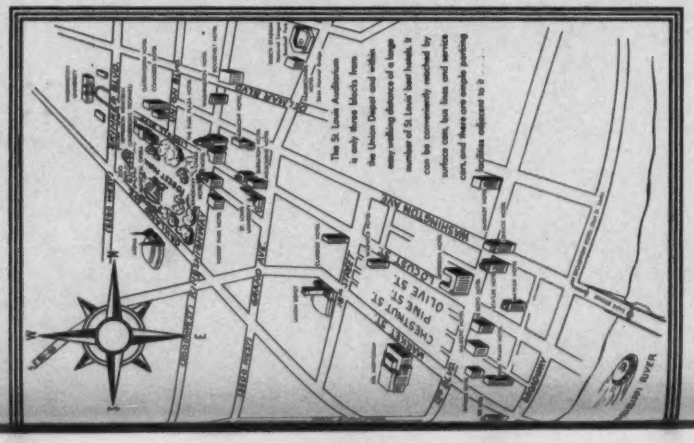
Southern Medical Association

911 Locust Street, Room 406

Saint Louis 1, Missouri

SECOND FOLD HERE

THIRD FOLD HERE


The St. Louis Auditorium is only three blocks from the Union Depot and within easy walking distance of a large number of St. Louis' best hotels. It can be conveniently reached by surface cars, bus lines and service cars, and there are ample parking facilities adjacent to it.
WASHINGTON AVE.
LOCUST ST.
OLIVE ST.
PINE ST.
CHESTNUT ST.
MARKET ST.
MISSISSIPPI RIVER

Preliminary Program

54th Annual Meeting

ST. LOUIS

October 31—November 3
1960

PRESIDENT'S MESSAGE

The time draws near when we will again come together for the Annual Meeting of Southern Medical Association—our 54th—October 31-November 3, 1960, in St. Louis.

We will gain in professional knowledge by attending sessions and symposia where the latest in medical and surgical research and technics are discussed. We will have the opportunity to observe and assess a vast array of scientific and technical data in the many exhibits. And we should return to our own offices enriched in mind and spirit.

In addition to benefiting from the scientific seminar that makes the Southern Medical Association Annual Meeting one of the nation's outstanding medical assemblies, we will receive also an intangible gain. This comes through the renewal of cherished friendships with our fellow physicians, bound together by a common aim of practicing better medicine.

Our thanks go to our host, St. Louis Medical Society and its general chairman of arrangements, Dr. Grayson Carroll. He and his committees are doing an excellent job in planning and coordinating a thousand and one necessary details. We are happy to return to St. Louis—rightly called one of the great medical and health centers of the nation—and the scene of five other highly successful annual meetings.

You will find an application for hotel reservations in this program—I hope you will send yours in as soon as possible.

I look forward with much pleasure to greeting you in St. Louis.

Sincerely yours,

Edwin H Lawson MD

EDWIN HUGH LAWSON, M.D.
President, Southern Medical Association

WELCOME TO *St. Louis*

• A cordial welcome awaits physicians, their families and guests at the 54th Annual Meeting of Southern Medical Association, where old friends will meet and new ideas will be exchanged.

• St. Louis — the city surrounded by the United States—is easy to reach by car, rail, plane or bus. Served by three transcontinental highways and two important north-south routes, it also has eighteen trunk lines and seven air routes into the city, as well as twenty-two bus lines.

• Many changes have taken place in St. Louis since the last time it played host to Southern Medical Association in 1954—changes that have enriched and enlarged the city's skyline, its homes, hotels, entertainment spots, municipal auditorium and medical facilities.

But unchanged is the hospitality familiar to all who have visited the "Crossroads of the Nation." Welcome back to St. Louis, members and guests of Southern Medical Association! And while you're here, be sure to see some of the things we're proud of.

MEDICAL FACILITIES—St. Louis is one of the world's great medical centers. Its two medical schools, Washington University and St. Louis University, are among the country's best. The sixty-two area hospitals now have in excess of 20,000 beds.

FOREST PARK—second largest city park in the nation, containing The Jewel Box, a cathedral of waterfalls and flowers; the Zoo, one of the country's finest, housing 2,000 animals; Municipal Theater, a five-acre natural bowl; Art Museum; Jefferson Memorial where Charles A. Lindbergh's famous collection is displayed.

SHAW'S GARDEN—patterned after London's famous Kew Garden, with more than 11,000 species of plants from all over the world—where prize chysanthemums, rare orchids, lilies, iris, roses, water lilies and poinsettias grow.

AND, IN ADDITION—fine theaters, excellent golf courses, night spots and famous restaurants.

HOTEL ACCOMMODATIONS—twenty or more first-rate hotels, with better than 4,000 air-conditioned rooms and a wide range of accommodations. And for those who like to park their cars close to their sleeping quarters, there are numerous attractive motels bordering the city's access routes. Be sure to send in your application for hotel accommodations as early as possible—and remember . . .

The Welcome Mat is Out in St. Louis for SMA

GENERAL INFORMATION

Registration

The registration desks will be located in the foyer of the Kiel Auditorium beginning Monday morning, October 31, at 8:00 a.m. and continuing daily until 5:00 p.m. The Auditorium is headquarters for all scientific sessions, registration, exhibits and information.

Tickets

Tickets to the President's Luncheon, President's Night, and to all regularly scheduled luncheons and dinners of the Sections and of alumni and fraternity groups may be secured near the registration area where each group will have a representative.

Executive Offices, Sheraton-Jefferson Hotel

The office of the Executive Secretary and staff will be open from 8:00 a.m. until 6:00 p.m. daily, October 30-November 3, inclusive at the Sheraton-Jefferson Hotel.

Pressroom, Kiel Auditorium

The pressroom, under the direction of Mr. J. Morgan Smith, will be located in Kiel Auditorium.

SHERPAGE—VIDEO PAGING SERVICE

SherPage video paging service is available for the convenience of the members and guests of the Association. SherPage monitors are located in all meeting rooms. Attached to each TV monitor is a telephone. To give your message use one of these telephones. The party concerned will be paged on the TV screens and the message given when the page is answered. Also, when you see your name paged on the TV screen please pick up the telephone attached to the TV monitors and disclose your identity to receive the message waiting for you.

SherPage is a complimentary service offered by Sherman Laboratories of Detroit, Michigan.

WHO MAY ATTEND

All scientific activities, meetings and exhibits at the Saint Louis Meeting will be available to physicians who are members in good standing of their local and state medical societies. Those who are not members of the Southern Medical Association will show membership cards evidencing membership in their local and state societies. All scientific meetings and exhibits will be available to residents, interns, senior and junior medical students, technicians and nurses. *There is no registration fee at Southern Medical Association meetings.*

WHO MAY BE MEMBERS

MEMBERSHIP—The membership of this Association shall be limited to eligible members of the various state and local medical societies of the following states, viz.: Alabama, Arkansas, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and eligible medical officers of the United States Army, Navy, Public Health Service and Veterans Administration, and eligible American members of the Canal Zone Medical Association and the Puerto Rico Medical Association.

DUES—The dues of this Association (which include a year's subscription to the *Southern Medical Journal*) shall be $10.00 per year, payable annually. —Extract, Chapter VIII, Bylaws.

ALUMNI AND FRATERNITY REUNIONS

The following medical schools and fraternities have arranged for luncheons or dinners. Further information and tickets to these events may be obtained near the registration area at Kiel Auditorium.

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, Houston, Texas. Dinner meeting, Monday, October 31, 6:30 p.m., Sheraton-Jefferson Hotel, Public Function Room No. 3.

DUKE UNIVERSITY SCHOOL OF MEDICINE, Durham, N. C. Banquet, Monday, October 31, Park Plaza Hotel, Tiara Lounge. Dr. Earl Holt, 7160 Washington, Saint Louis, Mo., Chairman.

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, Washington, D. C. Luncheon, Monday, October 31, 12:00 noon, Sheraton-Jefferson Hotel, Public Function Room No. 7. Dr. Arthur A. Siniscal, Suite 532 Metropolitan Building, Saint Louis 3, Mo., Chairman.

MEDICAL COLLEGE OF ALABAMA, Birmingham, Ala. Buffet dinner, Tuesday, November 1, 6:30 p.m., Forest Park Hotel. Drs. Elaine and Eldred Miller, Saint Louis, Mo., Chairmen.

MEDICAL COLLEGE OF GEORGIA, Augusta Ga. Cocktail party, Tuesday, November 1. Dr. Leon Foster, 6958 Washington, University City 5, Mo., Chairman.

MEDICAL COLLEGE OF SOUTH CAROLINA, Charleston, S. C. Cocktail party, Tuesday, November 1, 7:00 p.m., Sheraton-Jefferson Hotel. Dr. Jack C. Norris, 138 Doctors Building, Atlanta, Ga., Chairman.

TULANE UNIVERSITY SCHOOL OF MEDICINE, New Orleans, La. Banquet, Tuesday, November 1, 6:30 p.m., Sheraton-Jefferson Hotel, Ivory Room. Mr. John C. Baine, Saint Louis., Mo., Chairman.

UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE, Little Rock, Ark. Cocktail party and dinner, Monday, October 31, 6:30 p.m., Sheraton-Jefferson Hotel, Public Function Room No. 1. Mr. Fred G. Kettelkamp, Saint Louis, Mo., Chairman.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE, Baltimore, Md. Cocktail party and buffet, Tuesday, November 1, 6:30 p.m., Sheraton-Jefferson Hotel, Public Function Room No. 3. Dr. Robert A. Moses, Washington University School of Medicine, Department of Ophthalmology, 640 South Kingshighway Boulevard, Saint Louis, Mo., Chairman.

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE, University, Miss. Open House, Tuesday and Wednesday, November 1 and 2, Sheraton-Jefferson Hotel, Dr. Shands' suite. Dr. Robert Shands, New Albany, Miss., Chairman.

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE, Chapel Hill, N. C. Social hour and dinner, Tuesday, November 1, 6:00 p.m., Chase Hotel, Lido Room. Dr. J. W. Henderlite, 4500 Olive Street, Saint Louis 8, Mo., Chairman.

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE, Philadelphia, Pa. Cocktail party, Tuesday, November 1, 5:00-7:00 p.m., University Club. Dr. James T. Chamness, 607 North Grand Boulevard, Saint Louis 3, Mo., Chairman.

UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE, Memphis, Tenn. Dinner, Tuesday, November 1. Dr. Charles E. Baldree, Jr., 10 East Washington Street, Belleville, Ill., Chairman.

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE, Nashville, Tenn. Reception and dinner, Tuesday, November 1, Park Plaza Hotel. Dr. George

E. Roulhac, No. 9 Ridgewood Road, Saint Louis 24, Mo., Chairman.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, Saint Louis, Mo. Cocktail party, Tuesday, November 1, 5:30 p.m., Sheraton-Jefferson Hotel, Public Function Room No. 2.

PHI DELTA EPSILON. Plans to be announced.

PUBLIC TELECAST

In cooperation with the Association, Merck Sharp & Dohme will sponsor and produce a public telecast entitled "A School for Doctors: A Report on the Creation of the University of Kentucky Medical Center." The show will originate over one of the Saint Louis television stations and will feature the nationally known commentator, John Cameron Swayze.

SCIENTIFIC COLOR TV PROGRAMS

Through the courtesy of Smith Kline & French Laboratories of Philadelphia, Pa., a full schedule of color television programs will be screened at the Kiel Auditorium. The program, prepared by Dr. Daniel L. Sexton, Saint Louis, Mo., Chairman of the Committee on Scientific Television Programs, is as follows:

Monday, October 31

Kiel Auditorium

10:00-11:00 a.m. Preventive and Curative Treatment of Retinal Detachment. Surgical Demonstration.

PAUL A. CIBIS, St. Louis, Mo.
BERNARD BECKER, St. Louis, Mo.

11:00-12:00 noon Management of Complications of Laennec's Cirrhosis.

RALPH A. KINSELLA, JR., St. Louis, Moderator
EDWARD D. KINSELLA, St. Louis, Mo.
LEO V. MULLIGAN, St. Louis, Mo.
JAMES F. SULLIVAN, St. Louis, Mo.

2:00-3:00 p.m. Diagnosis of Cancer of Cervix. Diagnostic Demonstrations.

A. N. ARNESON, St. Louis, Mo., Moderator
JAMES H. FERGUSON, Miami, Fla.
HARLAN SPJUT, St. Louis, Mo.
JOHN WALL, Houston, Texas

3:00-4:00 p.m. Vaginal "Culdesac" Suspension of the Uterus. Panel Discussion and Operative Procedure.

GARTH JARVIS, Galveston, Texas, Moderator
JOSEPH HARDY, JR., St. Louis, Mo.
LEO J. HARTNETT, St. Louis, Mo.

Tuesday, November 1

Kiel Auditorium

10:00-11:00 a.m. Blood Transfusion Reactions. Recognition and Prevention.

CARL V. MOORE, St. Louis, Mo., Moderator
VIRGIL LOEB, JR., St. Louis, Mo.
HUGH CHAPLIN, St. Louis, Mo.
THOMAS BRITTINGHAM, St. Louis, Mo.
WILLIAM J. HARRINGTON, St. Louis, Mo.

11:00-12:00 noon Proctology: Discussion and Demonstrations on Malignant Diseases of Colon and Rectum; Inflammatory and Ulcerative Lesions of Colon and Rectum; Anal Cryptitis; Pararectal Abscess; Anal Fistulae; Hemorrhoids; Anorectal Disorders that may be Confused with Hemorrhoids.

SAMUEL J. FREUND, St. Louis, Mo., Moderator

1. **Polyps and Malignancy of the Rectum and Colon.**
   FRANCIS J. BURNS, St. Louis, Mo.
2. **Non-malignant Diseases of the Rectum and Colon.**
   BERTRAND D. COUGHLIN, St. Louis, Mo.
3. **Abscesses and Fistulae.**
   VIRGIL O. FISH, St. Louis, Mo.
4. **Hemorrhoids.**
   JACOB STOLAR, St. Louis, Mo.

2:00-3:00 p.m. The Case of the Diabetic Feet. Discussion and Demonstrations.

H. R. BUTCHER, St. Louis, Mo., Moderator
JAMES M. STOKES, St. Louis, Mo.
WILLIAM R. COLE, St. Louis, Mo.
WILLIAM H. OLMSTED, St. Louis, Mo.

3:00-4:00 p.m. Diagnosis and Surgical Management of Congenital Heart Disease. Discussion and Live Operation for Atrial Septal Defect.

C. ROLLINS HANLON, St. Louis, Mo., Moderator
DONALD W. BUSSMAN, St. Louis, Mo.
THEODORE COOPER, St. Louis, Mo.
MARY A. DAVIS, St. Louis, Mo.
J. GERARD MUDD, St. Louis, Mo.

Wednesday, November 2

Kiel Auditorium

10:00-10:30 a.m. Repair of Inguinal Hernia in Childhood.

THEODORE J. DUBUQUE, JR., St. Louis, Mo.

10:30-11:10 a.m. Management of Bleeding Peptic Ulcer.

VALLEE L. WILLMAN, St. Louis, Mo., Moderator
WM. A. KNIGHT, JR., St. Louis, Mo.
DONALD A. BINDBEUTAL, St. Louis, Mo.
DON C. WEIR, St. Louis, Mo.

11:10-12:00 noon Problems in the Diagnosis and Treatment of Some Cardiovascular Disorders.

RENE WEGRIA, St. Louis, Mo., Moderator
GEORGE L. CURRAN, St. Louis, Mo.
JAMES G. JANNEY, St. Louis, Mo.

2:00-3:00 p.m.

C. ALAN MCAFEE, St. Louis, Mo., Moderator

a. **Emergency Treatment of Fractures.**
   OSCAR P. HAMPTON, JR., St. Louis, Mo.
b. **Management of Tracheostomy.**
   RICHARD T. MAMIYA, St. Louis, Mo.

3:00-4:00 p.m. Alimentary Tract Obstructions in the Newborn.

JAMES KING, St. Louis, Mo., Moderator
ARMOND BRODUER, St. Louis, Mo.
JAMES EUGENE LEWIS, JR., St. Louis, Mo.

GOLF TOURNAMENT

The thirty-seventh annual golf tournament for men of the Southern Medical Association will be held Tuesday and Wednesday, November 1 and 2 at the Norwood Hills Country Club, Lucas and Hunt Road, Normandy 21, Missouri. Tournament play will consist of one eighteen-hole round of medal play, and entrants are privileged to play any time Tuesday or Wednesday. Please check with the Pro at the Club prior to playing your round and turn in your card to him after play.

It will facilitate handicapping if participants will bring a statement of their club handicap with them. Each golfer is requested to wear the regular SMA registration badge for identification when visiting the Club. All golfers are urged to bring their own clubs.

The three major trophies in play this year are the (1) *New Orleans Item Cup* for low gross, junior class (under 50 years of age); (2) the *Miami Daily News Cup*, in play for the eighth time for low gross, senior class; and (3) the *Dallas Morning News Trophy*, in play since 1925, handicap for low net.

All participants in the tournament must be physicians who are properly registered at SMA headquarters and must wear the official registration badge to be accorded the privileges of the Norwood Hills Country Club.

Arrangements for the Tournament were made by the Golf Committee of which Dr. James R. Meador of St. Louis is Chairman.

WOMAN'S AUXILIARY

The Woman's Auxiliary to the Southern Medical Association will hold its 36th annual meeting in Saint Louis in conjunction with the Southern Medical Association.

The Auxiliary will have its headquarters at the Statler-Hilton Hotel where all of their activities will be centered.

The sessions will be presided over by Mrs. John M. Chenault, President, Decatur, Alabama.

At the conclusion of the sessions Mrs. Kalford W. Howard, Portsmouth, Virginia, will be installed as President.

Program for the Woman's Auxiliary appears on page 45.

MEDICAL STUDENT REPRESENTATIVES

The Association will again invite representatives of the senior class of eight medical schools to be its guests for the meeting. These fine young doctors of the future will have an opportunity to observe every phase of the operation of a Southern Medical meeting.

The agenda will include visits to the Section programs, exhibits and medical facilities in the Saint Louis area.

Schools which will be invited to send an elected representative are:

Saint Louis University School of Medicine, Saint Louis, Missouri

University of Arkansas School of Medicine, Little Rock, Arkansas

University of Louisville School of Medicine, Louisville, Kentucky

University of Missouri School of Medicine, Columbia, Missouri

University of Oklahoma School of Medicine, Oklahoma City, Oklahoma

University of Tennessee College of Medicine, Memphis, Tennessee

Vanderbilt University School of Medicine, Nashville, Tennessee

Washington University School of Medicine, Saint Louis, Missouri

CONJOINT SOCIETIES

Medical groups meeting conjointly with the Southern Medical Association are:

American College of Chest Physicians, Southern Chapter

American Society of Internal Medicine

Southeastern Proctologic Society

Southern Gynecological and Obstetrical Society

GENERAL SESSIONS

Two major general sessions will augment the regular sessions of the Association's twenty Sections. One, a Symposium on Cerebrovascular Disease, will be presented at 8:30 a.m. until 12:00 noon, Monday, October 31, Kiel Auditorium. Dr. J. Garber Galbraith, Birmingham, Alabama, is Chairman for this Symposium. The other session will be a Symposium on Medico-economics or The Business Side of Medicine, to be held at 9:00 a.m. until 12:00 noon, Thursday, November 3, Kiel Auditorium. Dr. Robert D. Moreton, Fort Worth, Texas, is Chairman for this Symposium.

See program index for detailed programs of these two outstanding sessions.

PRESIDENT'S LUNCHEON

A special luncheon honoring Dr. Edwin Hugh Lawson of New Orleans, Louisiana, *President*, will be held in the Sheraton-Jefferson Hotel, Gold Room, 12:30 p.m., Tuesday, November 1. Tickets will be available at all registration desks.

There will be a brief business session and the entire membership and their wives are invited to attend.

PRESIDENT'S NIGHT—ANNUAL DINNER DANCE

The social highlight of the meeting will be held Wednesday evening, November 2, in the Sheraton-Jefferson Hotel, Gold Room, at 7:00 p.m.

An evening of food, fun and frolic has been planned for the members, their wives and guests of the Association. The Entertainment Committee, headed by Dr. Clinton W. Lane, has arranged for an outstanding program of entertainment.

The Avis Miller Trio will be on hand to provide music during the cocktail hour; everyone's favorite listenable-danceable tunes will be played by Stan Daugherty and His Orchestra; Jack "Mr. Funnyface" Marshall, with characterizations and gags that are always new, will keep you laughing; for a change of pace and laughs for all, Nicki & Noel will amaze you as they work their way through their delightfully entertaining routines; and to climax the evening, "Spain's Royal Family of Comedy," Pompoff, Thedy & Family, will present musical nonsense in the Continental Manner—a cavalcade of comedy antics and wonderful music played on every available instrument.

Everyone is urged to buy tickets for this gala affair at the registration area in Kiel Auditorium.

COMMITTEES ON ARRANGEMENTS SAINT LOUIS

General Chairman—Doctor Grayson Carroll.

Vice General Chairmen—Doctors Paul F. Max, Joseph B. Kendis and Preston C. Hall.

Executive Committee—Doctor Daniel L. Sexton, *Chairman;* Doctors Robert B. Bassett, O. P. J. Falk, Robert C. Kingsland and Alphonse McMahon.

Advisory Committee—Doctor R. O. Muether, *Chairman;* Doctors Arthur G. Asher, William A. Bloom, James Barrett Brown, John W. Claiborne, Jr., James W. Colbert, Jr., Edward W. Dempsey, Edwin C. Ernst, Harold L. Gainey, C. Rollins Hanlon, Robert C. Haynes, Ralph A. Kinsella, Curtis H. Lohr, Carl V. Moore, Carl A. Moyer, M. Pinson Neal, Ralph Perry, Alphonse M. Schwitalla, Wendell G. Scott, René Wégria, Don C. Weir, Vernon E. Wilson and George J. L. Wulff, Jr.

Entertainment Committee—Doctor Clinton W. Lane, *Chairman:* Doctors Edgar W. Davis, Harold J. Freiheit, Preston C. Hall, Lee W. Hawkins, Victor E. Scherman, Elmer E. Sexton and Jerome I. Simon.

Registration Committee—Doctor David N. Kerr, *Chairman;* Doctors James T. Chamness, Joseph P. Costello, Jr., Maurice A. Diehr, Barney W. Finkel, Charles H. Leslie, Robert E. Mack, Thomas F. Maher, Jr., Mary E. Morris, John B. Shapleigh, Charles S. Sherwin, Kathleen Smith, William A. Tibbs, Jr., Donald L. Twedell and Royal A. Weir.

Membership Committee—Doctor Sam J. Merenda, *Chairman;* Doctors Morris Abrams, Cecil M. Charles, David B. Flavan, Lee A. Hall, Vencel W. Hollo, Albert M. Huggins, John G. Kellett, John O'Connell, Earl A. Powell, J. Martyn Schattyn and Willard B. Walker.

Hotel Committee—Doctor Leo J. Hartnett, *Chairman;* Doctors Louis Kenneth Beasley, Roy V. Boedeker, Truman G. Drake, Dee W. Eades, Augustus P. Munsch, George E. Roulhac, Theodore E. Sanders, Joseph E. Von Kaenel and Paul R. Whitener.

Scientific Exhibits Committee—Doctor Joseph C. Edwards, *Chairman;* Doctors Robert W. Bartlett, Goronwy O. Broun, Lee T. Ford, Jr., Leonard T. Furlow, Louis H. Jorstad, Michael M. Karl, Ralph A. Kinsella, Jr., William A. Knight, Jr., James Eugene Lewis, Jr., David M. Lieberman, Robert H. Lund, Edward Massie, James F. Nickel, Edmund A. Smolik and George E. Thoma, Jr.

Alumni Committee—Doctor James P. Murphy, *Chairman;* Doctors Charles E. Baldree, Jr., Sim F. Beam, Charles R. Doyle, Ralph V. Gieselman, Walter T. Gunn, Fleming B. Harper, George L. Hawkins, Jr., Louis F. Howe, James L. Mudd, Dean Sauer, Arthur E. Strauss, Herbert C. Sweet and Stanley M. Wald.

Fraternity Committee—Doctor Martin G. Austin, *Chairman;* Doctors D. A. Bindbeutel, Richard B. Dunham, Max S. Franklin, Preston C. Hall and Robert G. Hughes.

Medical Students Committee—Doctor John G. Leahy, *Chairman;* Doctors William F. Kistner, Maurice J. Lonsway, Jr., John A. Nuetzel, George B. Rader and Herman W. Reas.

Publicity Committee—Doctor Arthur W. Neilson, *Chairman;* Doctors Willard Bartlett, Edward M. Cannon, William J. Gillespie, Falls B. Hershey, Sidney Jick, Robert W. Kelley, Luke A. Knese, Paul S. Lowenstein, Vernon E. Michael, James R. Nakada, John P. Roberts, Andrew J. Signorelli; Mr. Hollister S. Smith and Mr. Edgar J. Mothershead.

Scientific Television Programs Committee—Doctor Daniel L. Sexton, *Chairman;* Doctors Arthur R. Dalton, Edwin C. Ernst, Jr., John L. Horner, Bernard J. McMahon and George J. L. Wulff, Jr.

Golf Committee—Doctor James R. Meador, *Chairman;* Doctors Durand Benjamin, Eugene M. Bricker, S. Albert Hanser, Robert F. Hickey, Edward C. Kienzle, Lawrence M. Lawton, Charles E. Martin, Sylvester H. Pranger, Louis A. Reuter, Ernest T. Rouse, Albert J. Sausville, Paul C. Schnoebelen, Roy A. Walther, Jr. and Frank G. Zingale.

Women Physicians Committee—Doctor M. Cecelia Reichert, *Chairman;* Doctors Grace E. Bergner, Patricia A. Brennan, Helen L. Bruce, Margaret Chieffi, Ruth C. Comens, Katherine J. Crawford, Joan M. Goebel, Netajean Broome Kappesser, Rosemary R. Larkin, Ellen S. Loeffel, Meredith Jorstad Payne, Virginia H. Peden, Kathleen Smith, Frances H. Stewart and Lois C. Wyatt.

SECTION HOST COMMITTEES

Allergy—Doctor Stanley F. Hampton, *Chairman;* Doctors Harry L. Alexander, Jack Barrow, Robert E. Bolinske, Herman N. Eisen, Charles H. Eyermann, Wayne O. Gorla, French K. Hansel, Joseph W. Noah, Ross B. Sommer, Clement J. Sullivan and Keith S. Wilson.

Anesthesiology—Doctor Robert B. Dodd, *Chairman;* Doctors Seymour Brown, John P. Eberle, Edward O. Kraft, John L. Krieger, Joseph McNearney, Jean J. Merz, Julius C. Rotter, John F. Schweiss and George K. Warner.

Dermatology and Syphilology—Doctor Martin F. Engman, Jr., *Chairman;* Doctors James W. Bagby, Joseph B. Grindon, Jr., Lawrence K. Halpern, George Manting, Newell W. Schlueter, James C. Sisk, Garold V. Stryker, Norman Tobias, Eugene P. Weber and Richard S. Weiss.

Gastroenterology—Doctor William A. Knight, Jr., *Chairman;* Doctors Leslie D. Cassidy, Harold L. Joslyn, Robert W. Kelley, Joseph W. Larimore, William C. Macdonald, Frank J. Manganaro, Harold Scheff and Richard L. Sterkel.

General Practice—Doctor Eugene W. Hall, *Chairman;* Doctors Foster A. Dill, Reynolds L. Emerson, Walter C. Gray, John G. Kellett, Carl H. Lindeman, Charles E. Martin, Charles O. Metz, Wilbur A. Mullarky, Albert J. Sausville, Charles T. Shepherd, Ellsworth A. Westrup and Leon F. Weyerich.

Gynecology—Doctor Joseph A. Hardy, *Chairman;* Doctors Willard M. Allen, A. N. Arneson, Bryce H. Bondurant, Myron W. Davis, E. Lee Dorsett, John E. Hobbs, Grey Jones, Frederick W. Martin, Richard Paddock, James Pennoyer, William H. Vogt, Jr. and George J. L. Wulff, Jr.

Industrial Medicine and Surgery—Doctor Richard A. Sutter, *Chairman;* Doctors Thomas A. Coates, Edwin C. Funsch, William L. Macon, Jr., Jacob G. Probstein, Carl J. Reis and Douglas A. Ries.

Medicine—Doctor Samuel B. Grant, *Chairman;* Doctors Sim F. Beam, Louis K. Beasley, William G. Becke, Truman G. Drake, Alfred Goldman, John J. Hammond, William J. Harrington, John T. Lawton, Virgil Loeb, Jr., Drew Luten, Charles W. Miller, Paul Murphy, Edward H. Reinhard, Carl J. Reis, Llewellyn Sale, Sol Sherry, David M. Skilling and Barrett L. Taussig.

Neurology and Psychiatry—Doctor Edwin F. Gildea, *Chairman;* Doctors Robert D. Brookes, Archie D. Carr, Frank M. Grogan, Andrew B. Jones, Louis H. Kohler, Paul E. Kubitschek, William B. Lytton, David F. Mendelson, Walter L. Moore and H. Unterberg.

Obstetrics—Doctor Matthew W. Weis, *Chairman;* Doctors Leon Foster, Leo J. Hartnett, William D. Hawker, Joseph M. Krebs, Otto S. Krebs, Kenneth V. Larsen, Milton H. Meyerhardt, Seymour Monat, Richard I. C. Muckerman, Frank G. Robertson, Melvin A. Roblee and Alva C. Trueblood, Jr.

Ophthalmology and Otolaryngology—Doctor Bernard J. McMahon, *Chairman;* Doctors Edmund B. Alvis, William H. Bailey, Alfred J. Cone, James B. Costen, Armand D. Fries, Guerdan Hardy, William B. Harkins, H. Rommel Hildreth, Vincent L. Jones, Joseph M. Keller, Philip S. Luedde, Robert D. Mattis, Benjamin Milder, Paul W. Miles, Hubert B. Peugnet, M. Hayward Post, Robert E. Ryan, Albert C. Stutsman and Theodore E. Walsh.

Orthopedic and Traumatic Surgery—Doctor Oscar P. Hampton, Jr., *Chairman;* Doctors Vilray P. Blair, Jr., Donald O. Burst, Marshall B. Conrad, Clarence H. Crego, Jr., Lee T. Ford, Jr., Robert E. Funsch, Edward C. Holscher, Richard E. Lord, Henry R. McCarroll, Robert M. O'Brien, Fred C. Reynolds, Maurice B. Roche, George E. Scheer and Garland F. Smith.

Pathology—Doctor Henry C. Allen, *Chairman;* Doctors Lauren V. Ackerman, Hollis N. Allen, William R. Platt, Bonaventure C. Portuondo, John R. Roberts, Eugene F. Tucker and L. S. N. Walsh.

Pediatrics—Doctor Maurice J. Lonsway, Sr., *Chairman;* Doctors Joseph A. Bauer, Clifford R. Boles, Robert J. Burke, Joseph P. Costello, Sr., Peter G. Danis, David Goldring, Caldwell K. Hamilton, Victor E. Hrdlicka, Joseph C. Jaudon, Chester P. Lynxwiler, Peter J. Manion, Burch A. Merritt, Frank S. Wissmath and Theodore S. Zahorsky.

Physical Medicine and Rehabilitation—Doctor D. Elliott O'Reilly, *Chairman;* Doctors Harry L. Acker, John W. Deyton, Otakar Machek, Eric Reiss, Henry Rosenfeld and Franz U. Steinberg.

Proctology—Doctor Francis J. Burns, *Chairman;* Doctors Bertrand D. Coughlin, Virgil O. Fish, Samuel J. Freund, George J. Fuchs, Rubin Hackmeyer, Leo J. LeBlanc and Jacob Stolar.

Public Health—Doctor George D. Kettelkamp, *Chairman;* Doctors Albert B. Eisenstein, C. Howe Eller, M. K. King, Guy N. Magness, J. Earl Smith and Melvin Tess.

Radiology—Doctor Joseph C. Peden, *Chairman;* Doctors Harry I. Berland, Victor T. Jones, Stanley S. Nemec, L. R. Sante, Hyman R. Senturia, Wayne A. Simril, Paul F. Titterington, Hugh M. Wilson and Oscar C. Zink.

Surgery—Doctor Carl E. Lischer, *Chairman;* Doctors Edward H. Bowdern, Thomas H. Burford, Kenneth B. Coldwater, James F. Dowd, Emmett B. Drescher, George T. Gafney, Roland S. Kieffer, John V. King, Leo V. Mulligan, Pierce W. Powers, J. William Thompson, William L. Tomlinson and Franklin E. Walton.

Urology—Doctor Charles H. Nicolai, *Chairman;* Doctors J. Paul Altheide, Edward J. Becker, Louis N. Berard, Robert V. Brennan, Cyrus E. Burford, E. Humber Burford, John E. Byrne, Justin J. Cordonnier, Jules H. Kopp, H. H. Kramolowsky, James M. Macnish, Donald J. Mehan, William F. Melick, Robert K. Royce, Alvin E. Vitt and Carl A. Wattenberg.

A SYMPOSIUM ON CEREBROVASCULAR DISEASE

Chairman....J. GARBER GALBRAITH, Birmingham, Ala.

Monday, October 31, 8:30 a.m.

Kiel Auditorium

8:30 a.m. Introduction.
J. GARBER GALBRAITH, Birmingham, Ala.

8:40 a.m. Current Concepts of Cerebral Vascular Insufficiency.
WILLIAM S. FIELDS, Houston, Texas

In recent years much new light has been shed on the pathogenesis of cerebrovascular disease. This in turn has led to better correlation between symptoms and underlying pathology. The role of the collateral circulation is increasingly important. Arteriography has led to better understanding of many lesions and has necessitated change in some of the older clinical concepts. Revision of our older concepts of cerebrovascular disease is now desirable.

9:05 a.m. Basilar and Carotid Artery Insufficiency Syndromes: Diagnosis and Medical Therapy.
SHEILA SHEEHAN, Detroit, Mich.

The most common forms of cerebrovascular disease are the insufficiency syndromes involving the carotid and/or vertebral-basilar arterial systems. Early diagnosis and adequate medical therapy offer hope to many of prevention of the tragically disabling effects of massive cerebral infarction. Maintenance of adequate cerebral blood flow is the goal of therapy, and the best medical means of accomplishing this are outlined.

9:30 a.m. Arteriography in Diagnosis of Occlusive Cerebrovascular Disease.
M. M. KEIRNS, Memphis, Tenn.

Arteriography is of increasing importance in the evaluation of the cerebral circulation. In addition to visualization on the cerebral vascular tree, seriographic studies yield dynamic information regarding cerebral blood flow and collateral circulation. The indications and contraindications for arteriography are presented, along with slides demonstrating typical occlusive vascular lesions.

9:45 a.m. Surgical Management of Carotid Insufficiency.
FRANCIS MURPHEY, Memphis, Tenn.

Cerebral vascular insufficiency associated with occlusion, complete or partial, of the carotid artery in the neck is a prevalent clinical entity. Early recognition of this syndrome allows surgical removal of the occlusive lesion and re-establishment of adequate cerebral blood flow before brain damage occurs. The essayist's extensive experience in this field is presented, along with follow-up statistics and arteriograms.

Intermission—Visit Exhibits

10:30 a.m. Surgical Management of Basilar and Carotid Insufficiency Associated with Occlusive Lesions of Aortic Arch and Its Branches.
E. STANLEY CRAWFORD, Houston, Texas

Insufficiency of cartoid or basilar systems not infrequently result from atherosclerotic occlusion, partial or complete, of the origin of the carotid or vertebral arteries from the great vessels in the neck. Clinical recogntiion and surgical management of these lesions is presented.

10:45 a.m. Radiological Diagnosis of Intracranial Aneurysms and Vascular Anomalies.
M. M. KEIRNS, Memphis, Tenn.

Subarachnoid hemorrhage, and in fact any form of spontaneous intracranial hemorrhage, in the young adult population is most likely to represent bleeding from an aneurysm or angioma. Arteriography allows visualization of the underlying pathology and permits formulation of a rational surgical approach for control of the lesion.

10:55 a.m. Management of Intracranial Aneurysms.
HENRY G. SCHWARTZ, St. Louis, Mo.

The surgery of intracranial aneurysms has evolved during the past decade, aided by more accurate diagnosis (arteriography) and adjuncts to surgery, specifically hypotension and hypothermia. The present day management of aneurysms from the moment of rupture through the definitive surgical attack on the lesion is presented. This formidable lesion is now amenable to complete eradication in many cases provided the initial episode of subarachnoid hemorrhage does not prove fatal.

11:25 a.m. Hypothermia in Management of Cerebrovascular Lesions.
HUBERT L. ROSOMOFF, Pittsburgh, Pa.

Hypothermia protects the brain from damage due to ischemia and anoxia. This has proven to be a valuable adjunct to the surgical attack on intracranial aneurysms. The method also is of value in minimizing the brain damage after acute thrombosis or embolism. The current role of hypothermia in the management of cerebrovascular disease is presented.

11:45 a.m. Panel: Question and Answer Period.

A SYMPOSIUM ON MEDICOECONOMICS OR THE BUSINESS SIDE OF MEDICINE

Chairman....ROBERT D. MORETON, Fort Worth, Texas

Thursday, November 3, 9:00 a.m.

Kiel Auditorium

DOCTOR AND HIS OFFICE

The Doctor as a Businessman.
JOHN R. SEDGWICK, Consultant on Medical Practice, Sears Roebuck Foundation, Chicago, Ill.

Yardstick for Action.
WOODROW WIRSIG, Editor, *Printers' Ink*, New York, N. Y.

The Business of Practicing Medicine.
HORACE COTTON, Senior Editor, *Medical Economics*, Oradell, N. J.

Intermission—Visit Exhibits

DOCTOR AND THE HOSPITAL

Steps to Protect Yourself Against Professional Liability.
JOSEPH F. SADUSK, JR., M.D., member of the American Medical Association Committee on Medical Legal Problems, Oakland, Calif.

"No Margin for Error," a film on communication failure within the hospital, will also be presented.

Symposium arranged under the co-sponsorship of The Wm. S. Merrell Company.

SCIENTIFIC COLOR TV PROGRAMS

Chairman.....DANIEL L. SEXTON, St. Louis, Mo.

Monday, October 31

Kiel Auditorium

10:00-11:00 a.m. Preventive and Curative Treatment of Retinal Detachment. Surgical Demonstration.

PAUL A. CIBIS, St. Louis, Mo.
BERNARD BECKER, St. Louis, Mo.

11:00-12:00 noon Management of Complications of Laennec's Cirrhosis.

RALPH A. KINSELLA, JR., St. Louis, Mo., Moderator
EDWARD D. KINSELLA, St. Louis, Mo.
LEO V. MULLIGAN, St. Louis, Mo.
JAMES F. SULLIVAN, St. Louis, Mo.

2:00-3:00 p.m. Diagnosis of Cancer of Cervix. Diagnostic Demonstrations.

A. N. ARNESON, St. Louis, Mo., Moderator
JAMES H. FERGUSON, Miami, Fla.
HARLAN SPJUT, St. Louis, Mo.
JOHN WALL, Houston, Texas

3:00-4:00 p.m. Vaginal "Culdesac" Suspension of the Uterus. Panel Discussion and Operative Procedure.

GARTH JARVIS, Galveston, Texas, Moderator
JOSEPH HARDY, JR., St. Louis, Mo.
LEO J. HARTNETT, St. Louis, Mo.

Tuesday, November 1

Kiel Auditorium

10:00-11:00 a.m. Blood Transfusion Reactions. Recognition and Prevention.

CARL V. MOORE, St. Louis, Mo., Moderator
VIRGIL LOEB, JR., St. Louis, Mo.
HUGH CHAPLIN, St. Louis, Mo.
THOMAS BRITTINGHAM, St. Louis, Mo.
WILLIAM J. HARRINGTON, St. Louis, Mo.

11:00-12:00 noon Proctology: Discussion and Demonstrations on Malignant Diseases of Colon and Rectum; Inflammatory and Ulcerative Lesions of Colon and Rectum; Anal Cryptitis; Pararectal Abscess; Anal Fistulae; Hemorrhoids; Anorectal Disorders that may be Confused with Hemorrhoids.

SAMUEL J. FREUND, St. Louis, Mo., Moderator

1. **Polyps and Malignancy of the Rectum and Colon.**
   FRANCIS J. BURNS, St. Louis, Mo.

2. **Non-malignant Diseases of the Rectum and Colon.**
   BERTRAND D. COUGHLIN, St. Louis, Mo.

3. **Abscesses and Fistulae.**
   VIRGIL O. FISH, St. Louis, Mo.

4. **Hemorrhoids.**
   JACOB STOLAR, St. Louis, Mo.

2:00-3:00 p.m. The Case of the Diabetic Feet. Discussion and Demonstrations.

H. R. BUTCHER, St. Louis, Mo., Moderator
JAMES M. STOKES, St. Louis, Mo.
WILLIAM R. COLE, St. Louis, Mo.
WILLIAM H. OLMSTED, St. Louis, Mo.

3:00-4:00 p.m. Diagnosis and Surgical Management of Congenital Heart Disease. Discussion and Live Operation for Atrial Septal Defect.

C. ROLLINS HANLON, St. Louis, Mo., Moderator
DONALD W. BUSSMAN, St. Louis, Mo.
THEODORE COOPER, St. Louis, Mo.
MARY A. DAVIS, St. Louis, Mo.
J. GERARD MUDD, St. Louis, Mo.

Wednesday, November 2

Kiel Auditorium

10:00-10:30 a.m. Repair of Inguinal Hernia in Childhood.

THEODORE J. DUBUQUE, JR., St. Louis, Mo.

10:30-11:10 a.m. Management of Bleeding Peptic Ulcer.

VALLEE L. WILLMAN, St. Louis, Mo., Moderator
WM. A. KNIGHT, JR., St. Louis, Mo.
DONALD A. BINDBEUTAL, St. Louis, Mo.
DON C. WEIR, St. Louis, Mo.

11:10-12:00 noon Problems in the Diagnosis and Treatment of Some Cardiovascular Disorders.

RENE WEGRIA, St. Louis, Mo., Moderator
GEORGE L. CURRAN, St. Louis, Mo.
JAMES G. JANNEY, St. Louis, Mo.

2:00-3:00 p.m.

C. ALAN MCAFEE, St. Louis, Mo., Moderator

a. Emergency Treatment of Fractures.
OSCAR P. HAMPTON, JR., St. Louis, Mo.

b. Management of Tracheostomy.
RICHARD T. MAMIYA, St. Louis, Mo.

3:00-4:00 p.m. Alimentary Tract Obstructions in the Newborn.

JAMES KING, St. Louis, Mo., Moderator
ARMOND BRODUER, St. Louis, Mo.
JAMES EUGENE LEWIS, JR., St. Louis, Mo.

SECTION ON ALLERGY

Officers

Chairman.....WILLIAM C. GRATER, Dallas, Texas
Vice-Chairman.....THOMAS E. VAN METRE, JR., Baltimore, Md.
Secretary.....JOHN P. MCGOVERN, Houston, Texas
Secretary-Elect....CLAUDE A. FRAZIER, Asheville, N. C.

Hosts from the Saint Louis Medical Society:

STANLEY F. HAMPTON, *Chairman*
HARRY L. ALEXANDER
JACK BARROW
ROBERT E. BOLINSKE
HERMAN N. EISEN
CHARLES H. EYERMANN
WAYNE O. GORLA
FRENCH K. HANSEL
JOSEPH W. NOAH
ROSS B. SOMMER
CLEMENT J. SULLIVAN
KEITH S. WILSON

Presentations limited to ten minutes, including time required for lantern slides and/or motion pictures;

the Chairman and Guest Speaker to be allowed thirty minutes. Discussion limited to five minutes.

Tuesday, November 1, 9:00 a.m.

Kiel Auditorium

THOMAS E. VAN METRE, JR., Baltimore, Md., *presiding*

Perforation and Inflammation of Diverticula of the Colon Secondary to Long-Term Adrenocortico Steroid Therapy for Bronchial Asthma and Pulmonary Emphysema.

BERNARD T. FEIN, San Antonio, Texas

Much evidence has been presented that long-term steroid thereby causes numerous complications of the upper gastrointestinal tract. Some cases of rupture of the lower gastrointestinal tract have been reported in ulcerative colitis and regional enteritis. The present series of cases demonstrates involvement of the diverticula of the colon. Three cases of ruptured diverticulae and one case of severe diverticulitis with two deaths resulting are reported. These complications are directly attributed to the prolonged use of adrenocorticosteroids in the treatment of bronchial asthma and pulmonary emphysema.

Discussion to be opened by GEORGE STUART, Washington, D. C.

Differential Diagnosis of Wheezing in Infancy.

LLOYD V. CRAWFORD, Memphis, Tenn.

The differential diagnosis of asthma in older children offers very few problems. On the other hand, wheezing in infancy is a condition that is often misdiagnosed. Among conditions to be differentiated are foreign bodies, vascular rings, infectious bronchitis, mucoviscidosis, congenital lobar emphysema, bronchiolitis and congenital laryngeal stridor. This paper will concern the clinical and laboratory aspects of conditions responsible for wheezing in infancy. Included in the slides to be shown will be chest x-rays of non-allergic causes of wheezing in young children.

Discussion to be opened by CARROLL M. POUNDERS, Oklahoma City, Okla.

Chairman's Address: Novabiocin in Allergy.

WILLIAM C. GRATER, Dallas, Texas

Intermission—Visit Exhibits

The Treatment of Pollinosis by Means of Single Annual Injection.

ETHAN ALLAN BROWN, Boston, Mass.

Following the administration of approximately 15,000 injections of emulsified extract a number of hypotheses, subject to confirmation, have emerged. Brief mention will be given to the type of extract, the type of emulsion, the method of administration, the date of the injection and the results to be expected.

***Panel Discussion:* Etiology and Treatment of Acute and Chronic Urticaria.**

Moderator: CLAUDE A. FRAZIER, Asheville, N. C.

Panel Members:

CARL E. ARBESMAN, Buffalo, N. Y.
CECIL M. KOHN, Kansas City, Mo.
STANLEY F. HAMPTON, St. Louis, Mo.
FREDERIC SPEER, Kansas City, Kan.

Tuesday, November 1

6:00-7:00 p.m.—Cocktail Hour. Location to be announced.

Wednesday, November 2, 9:00 a.m.

Kiel Auditorium

WILLIAM C. GRATER, Dallas, Texas, *presiding*

Studies With Megalophage Opercularis.

THOMAS R. MCELHENNEY, Austin, Texas

Megalophage Opercularis or "wooly worm" has through the past twenty years become a significant problem in the Southwest area due to the frequency and often severity of its sting. Practically no data concerning this catapillar, the type and incidence of its stings, and/or complications appear in the literature. A survey of the incidence, natural history of the sting, its complications and hypersensitivity reactions will be presented along with colored slides.

Discussion to be opened by BOEN SWINNY, San Antonio, Texas.

Clinical Evaluation of Clysmathane in Adult and Pediatric Asthma.

H. WHITNEY BOGGS, Shreveport, La.

One hundred cases of asthma—acute and chronically recurring—taken from private practice and Confederate Memorial Medical Center, are reviewed. They are equally divided between adult and pediatric cases. Special attention is drawn to the fact that one-half of the "accepted" average dose of theophyllin gives prompt, prolonged relief, without sideeffects, by this method of administration. There is ready acceptance of treatment because of (1) rapidity and completeness of relief, (2) convenience, and (3) aesthetic acceptance.

Discussion to be opened by ALAN G. CAZORT, Little Rock, Ark.

Fluids and Expectorants in Asthma.

DONALD L. THURSTON, St. Louis, Mo.

The discussion of the care of asthma will be limited to severe, frequently recurring or prolonged episodes. The pathophysiology as related to the symptoms is illustrated by slides. The need for parenteral fluids in therapy is readily demonstrated. The role of expectorants is ancillary to fluid therapy.

Discussion to be opened by THOMAS G. JOHNSTON, Little Rock, Ark.

GUEST SPEAKER

CARL E. ARBESMAN, M.D.

Buffalo, N. Y.

Assistant Clinical Professor of Medicine, Associate Professor in Immunology, University of Buffalo School of Medicine.

Immunologic and Practical Studies in Serum Sickness.

Samples of serum were obtained from patients who were to receive prophylactic injections of tetanus antitoxin. Sera were again collected two weeks following the injection. Patients were advised to return if symptoms of serum sickness developed prior to this time. (All patients had previous negative skin tests to horse serum.) Follow-up studies of the patients who developed serum sickness were carried out for many months. Hemagglutination tests to determine antibody against horse serum were performed on all of these sera. It was found that only those patients who had a pretetanus antitoxin hemagglutination titer above 200 developed serum sickness. Also, all patients who developed serum sickness showed a marked increase in their post-tetanus antitoxin titers which lasted for several years. It is felt that it can be predicted who will develop serum sickness by this method. Immunoelectrophoresis studies revealed that the antibody against horse serum is both in the alpha one and gamma globulin fractions. The imunologic and practical significance of these studies and the data obtained during this course of study will be discussed in detail.

Intermission—Visit Exhibits

Business Session.

The Potentiating Value of an Antihistamine in Conjunction with Sympathomimetic Drugs in the Treatment of Asthma.

HENRY D. OGDEN and LOTTIE MCWHERTER, New Orleans, La.

A double blind, placebo controlled study of 52 patients was performed. An antiasthmatic (Tedral) was compared with

Tedral plus Chlorprophenpyridamine Maleate and with a placebo. Objective and subjective results were recorded, along with a tabulation of hours of mild, moderate and severe symptoms on each preparation. It was found that results obtained with Tedral were superior to placebo. However, Tedral plus antihistamine was far better than the other two.

Discussion to be opened by HOMER E. PRINCE, Crockett, Texas.

Institutional Care of Asthmatic Children.

SAMUEL C. BUKANTZ, Denver, Colo.

The integrated multi-disciplinary program of medical care and clinical and laboratory investigation of intractable asthmatics at the Jewish National Home for Asthmatic Children will be described in detail. The extent of similar activities in other parts of the United States will be reviewed briefly, as well as those recently encountered firsthand in visits to the European continent, Czechoslavakia, and the Soviet Union.

Discussion to be opened by ORVAL R. WITHERS, Kansas City, Mo.

SECTION ON ANESTHESIOLOGY

Officers

Chairman.....JOHN B. PARMLEY, New Orleans, La.
Vice-Chairman.....LEONARD WILLIAM FABIAN, Jackson, Miss.
Secretary.....ROBERT B. DODD, St. Louis, Mo.

Hosts from the Saint Louis Medical Society:

ROBERT B. DODD, *Chairman*
SEYMOUR BROWN
JOHN P. EBERLE
EDWARD O. KRAFT
JOHN L. KRIEGER
JOSEPH MCNEARNEY
JEAN J. MERZ
JULIUS C. ROTTER
JOHN F. SCHWEISS
GEORGE K. WARNER

Monday, October 31, 2:00 p.m.

Kiel Auditorium

A joint meeting of the Sections on Anesthesiology and Pediatrics

Symposium on the Pediatric Surgical Patient.

Introductory Remarks.

THEODORE C. PANOS, Little Rock, Ark.

Principles of Pre- and Postoperative Care in Children.

M. REMSEN BEHRER, St. Louis, Mo.

Regulation of Body Temperature in Pediatric Surgical Patients.

SARA J. DENT, Durham, N. C.

The Role of Antibiotics in the Care of the Pediatric Surgical Patient.

HARVEY R. BERNARD, St. Louis, Mo.

Intermission—Visit Exhibits

***Panel Discussion:* Pediatric Cardiac Surgery.**

From the Pediatrician's Viewpoint: HARRY F. STOECKLE, Columbia, Mo.

From the Anesthetist's Viewpoint: JOHN SCHWEISS, St. Louis, Mo.

From the Surgeon's Viewpoint: VALLEE L. WILLMAN, St. Louis, Mo.

Concluding Remarks.

ROBERT B. DODD, St. Louis, Mo.

Monday, October 31

6:30-8:00 p.m.—Cocktail party for members, guests and wives, Sheraton-Jefferson Hotel.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

Chairman's Address: Useful Nerve Blocks of Interest to General Practitioners.

JOHN B. PARMLEY and JOHN ADRIANI, New Orleans, La.

Certain nerve blocks are effective in relief of painful syndromes. Some of these are sufficiently simple that they may be performed in out-patient departments on ambulatory patients. The paper will describe blocks which can be so performed and point out those that should not. A summary of our own experiences with these blocks will be presented. Stress will be placed on over-zealous use of nerve blocking in situations in which they may be hazardous.

Discussion to be opened by KENNETH K. KEOWN, Columbia, Mo.

Intensive Care Unit and the Anesthesiologist.

PETER SAFAR, R. ABRAHAM, T. J. DEKORNFELD, F. G. HUBBARD and J. S. REDDING, Baltimore, Md.

In the Intensive Care Unit, the activities of the anesthesiologist include (1) treating patients in coma, pulmonary edema, coronary occlusion, obstructive emphysema, status asthmaticus, status epilepticus, etc.; (2) evaluation of ventilation and supervision of breathing machine care; (3) supervision of post-anesthetic recovery room care; and (4) instruction of nurses and interns. The organization, functioning and problems encountered with an Intensive Care Unit will be discussed in detail.

Discussion to be opened by SEYMOUR BROWN, St. Louis, Mo.

Twelve Months' Experience in Anesthesia in a 300 Bed General Hospital.

LESTER RUMBLE, JR., Atlanta, Ga.

Statistical reports covering the activities of a private anesthesia group or department are seldom seen in the literature. Individually, we tend to forget sad experiences and thus get a rather biased idea of complications resulting from anesthesia. Since all the anesthesias administered in this group of patients has been done by qualified individuals, the statistics may reflect results of anesthetic administration in a different manner from that reflected in a residency training program situation.

Discussion to be opened by EDWARD O. KRAFT, St. Louis, Mo.

Intermission—Visit Exhibits

Cyclopropane-Epinephrine Synergism.

J. S. GRAVENSTEIN and T. W. ANDERSEN, Gainesville, Fla.

Spinal, adrenalectomized, atropinized cats whose nictitating membranes are decentralized by sectioning the preganglionic sympathetic fibers in the neck do not respond with contraction of the nictitating membrane during the administration of cyclopropane. Infusion of epinephrine causes contraction of the nictitating membrane. When cyclopropane is added during a continuous infusion of epinephrine, the nictitating membrane contracts even more as if more epinephrine rather than cyclopropane had been given. Clinical implications are discussed.

Discussion to be opened by F. EDMUND HUNTER, St. Louis, Mo.

Clinical Appraisal of a New Local Anesthetic Drug: Carbocaine.

HAPPY L. GEE, JULIA BOX, HENRY DEWITT and LEONARD W. FABIAN, Jackson, Miss.

Recently a compound similar to lidocaine in chemical structure has been released for investigtaion and preliminary observations suggest that this anesthetic may be superior to lidocaine in some respects. In comparative tests using lidocaine as a control, Carbocaine has been used for all types of conduction anesthesia except subarachnoid block. The results of these

clinical studies will be discussed relevant to the merits of this new drug.

Discussion to be opened by ORAL B. CRAWFORD, Springfield, Mo.

Anesthesia for Cardiac Catheterization and Angiocardiography.

NORMAND M. BREMNER and JOHN R. S. SHIELDS, St. Louis, Mo.

Cardiac catheterization and angiocardiography are essential steps in the determination of operability and the anesthetic and surgical approach to the correction of a number of congenital cardiac malformations. An analysis of four years' experience in anesthetizing pediatric patients for cardiac catherization and angiocardiography is presented. Mortality and morbidity data and their relation to the evolution of the present anesthetic management of these cases are discussed.

Discussion to be opened by SANFORD COBB, Miami, Fla.

Business Session.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

Officers

Chairman..ROBERT N. BUCHANAN, JR., Nashville, Tenn.
Vice-Chairman..JOSEPH B. GRINDON, JR., St. Louis, Mo.
Secretary.....J. FRED MULLINS, Galveston, Texas

Hosts from the Saint Louis Medical Society:

MARTIN F. ENGMAN, JR., *Chairman*
JAMES W. BAGBY
JOSEPH B. GRINDON, JR.
LAWRENCE K. HALPERN
GEORGE MANTING
NEWELL W. SCHLUETER
JAMES C. SISK
GAROLD V. STRYKER
NORMAN TOBIAS
EUGENE P. WEBER
RICHARD S. WEISS

Presentations limited to twenty minutes, including time required for lantern slides and/or motion pictures; the Chairman and out-of-territory essayist to be allowed thirty minutes. Discussion limited to five minutes.

Sunday, October 30, 9:00 a.m.

Clinical Section Meeting, Barnard Skin and Cancer Hospital.

Monday, October 31, 9:00 a.m.

ZOLA COOPER CLINICOPATHOLOGIC SEMINAR

Barnard Skin and Cancer Hospital

Director: JAMES W. BURKS, New Orleans, La.

Moderator: WALLACE CLARK, JR., New Orleans, La.

Guest Moderator: HAMILTON MONTGOMERY, Rochester, Minn.

The seventh annual meeting of the Zola Cooper Pathologic Seminar will have the following panel members: Francis A. Ellis, Baltimore, Md.; Joseph M. Hitch, Raleigh, N. C.; John M. Knox, Houston, Texas; John H. Lamb, Oklahoma City, Okla.; Sidney Olansky, Atlanta, Ga.; Earl B. Ritchie, Galveston, Texas; and Morris Waisman, Tampa, Fla. Registration has been limited to 22 cases, but participation in the seminar is open to all dermatologists in attendance at the meeting. Demonstration slides will be available from 8:00 to 9:00 a.m. preceding the seminar for all those who are interested.

Monday, October 31, 2:00 p.m.

Kiel Auditorium

Chairman's Address: Granuloma Annulare.

ROBERT N. BUCHANAN, JR., Nashville, Tenn.

Photo Not Available

GUEST SPEAKER

JOHN L. FROMER, M.D.

Boston, Mass.

Management of Lymphoma with Electron Beam.

Over the past seven years electron beam therapy has been the primary mainstay of treatment for patients with cutaneous lymphoma. This study includes data on 200 patients treated by this technic. The salvage rate of patients who have had presumably the limit of superficial x-ray and chemotherapy prior to electron beam therapy has been gratifying. A Kodachrome survey of some of the pateints treated and a consideration of adjunct chemotherapy will be presented. A brief description of the Van de Graaff apparatus together with a brief comment on the action of electrons will be given.

Griseofulvin: A 16 Months' Study.

THOMAS W. MURRELL, JR., R. CAMPBELL MANSON and E. RANDOLPH TRICE, Richmond, Va.

The paper will report results obtained with the use of Griseofulvin in the treatment of superficial fungus infections, primarily due to T. Rubrum and M. Audouini. Local treatment was not used in any case. Photographs were extensively used as a means of recording results. An epidemic of T. Capitis involving 426 children is included in this study.

Discussion to be opened by HENRY W. JOLLY, JR., Baton Rouge, La.

Intermission—Visit Exhibits

The Topical Treatment of Acne.

HARRY M. ROBINSON, JR., DANIEL ROBERTS, JAMES K. ATON and ALBERT CIAMBOTTI, Baltimore, Md.

For many years, sulphur in various forms and in many combinations has been used in the topical treatment of acne. Apparently, the major reason for the use of sulphur lies in the fact that it supposedly has an inhibitory action on the growth of microorganisms and a drying action on the skin. In this study a double blind evaluation of topical sulphur preparations and other agents has been performed. The difficulty of evaluating the virtues of topical agents and the treatment of this condition and in doing control studies is discussed.

Discussion to be opened by D. SHELTON BLAIR, Dallas, Texas.

Pseudoxanthoma Elasticum Associated with Mitral Valvular Disease.

VINCENT J. DERBES and HARRY YOFFEE, New Orleans, La.

Pseudoxanthoma elasticum involves primarily the skin, gastrointestinal tract, eye and cardiovascular system. The cardiovascular involvement is related chiefly to arterial disease and is manifested by weakness or absence of peripheral pulses, intermittent claudication, premature medial calcification of peripheral arteries, coronary insufficiency, hypertension, and congestive heart failure. Valvular involvement of the heart is seldom mentioned. This paper describes a patient with pseudoxanthoma elasticum and mitral valvular disease, and comments on the probable relationship between them.

Discussion to be opened by ADOLPH H. CONRAD, JR., St. Louis, Mo.

Carcinoma of the Skin Following Acute and Chronic Trauma.

BENJAMIN F. BYRD, JR., ANTHONY J. MUNOZ and HAROLD FERGUSON, Nashville, Tenn.

This is a review of all instances of carcinoma of the skin seen at the Vanderbilt University Hospitals since 1925. From this series those patients have cicatrices, fistulas or sinuses in connection with skin carcinomas have been selected. In addition, patients having a history of recent trauma as the initial evidence of skin cancer have been studied. The results of treatment are presented together with the review of experimental evidence relating skin cancer and trauma.

Discussion to be opened by ROBERT E. LYONS, San Antonio, Texas.

Tuesday, November 1, 9:00 a.m.

Kiel Auditorium

Symposium on Occupational Dermatoses.

The Committee on Occupational Dermatoses of the Council on Occupational Health of the American Medical Association.

DONALD J. BIRMINGHAM, *Chairman*, Cincinnati, Ohio
LEONARD F. WEBER, Chicago, Ill.
A. FLETCHER HALL, Santa Monica, Calif.
GEORGE E. MORRIS, Boston, Mass.
JAMES W. JORDON, Buffalo, N. Y.
C. BARRETT KENNEDY, New Orleans, La.

Some of the topics to be covered by them are as follows: What are occupational dermatoses?; Primary irritant versus sensitization dermatitis; How does the physician conclude that a dermatitis venenata is occupational in origin?; Some occupational dermatologic hazards in Southern industries; The relationships among doctor, patient, employer, insurance carrier in the field of occupational dermatology; What keeps the workman's skin from getting well? This presentation will be done in two parts with general audience participation with questions and answers.

Business Session.

Monday, October 31

7:30 p.m.—Cocktails and Buffet, University Club.

SECTION ON GASTROENTEROLOGY

Officers

Chairman.....GEORGE E. WELCH, New Orleans, La.
Vice-Chairman....WILLIAM A. KNIGHT, St. Louis, Mo.
Secretary.....MALCOLM P. TYOR, Durham, N. C.

Hosts from the Saint Louis Medical Society:

WILLIAM A. KNIGHT, JR., *Chairman*
LESLIE D. CASSIDY
HAROLD L. JOSLYN
ROBERT W. KELLEY
JOSEPH W. LARIMORE
WM. C. MACDONALD
FRANK J. MANGANARO
HAROLD SCHEFF
RICHARD L. STERKEL

Presentations limited to ten minutes, including time required for lantern slides and/or motion pictures; the out-of-territory essayist to be allowed thirty minutes. Discussion limited to five minutes.

Monday, October 31, 2:00 p.m.

Kiel Auditorium

Ascites—Some Concepts and Misconceptions.

JOHN T. GALAMBOS, Atlanta, Ga.

In order to treat the ascites of cirrhotic patients adequately, one must have the correct concept regarding the mechanism of ascites accumulation. Metabolic balance studies will be presented from selected patients to illustrate certain points regarding the mechanism and therapy of ascites. It is our feeling that there is no such thing as refractory ascites in the presence of adequate glomerular filtration, but there is "refractory liver disease" which is the basic problem in each of these patients.

Discussion to be opened by DAVID CAYER, Winston-Salem, N. C.

A Comparison of Various Types of Fatty Liver.

JOE W. GRISHAM and W. STANLEY HARTROFT, St. Louis, Mo.

Experimental fatty livers induced by different etiologic agents possess morphologic characteristics which aid in their classification. These characteristics include lobular localization of fat, type of hepatic cellular or extracellular fat accumulations, and type of ultramicroscopic alterations of cellular organelles. Differences resulting from the action of various etiologic agents probably reflect alterations in different fat metabolizing or mobilizing enzyme systems and emphasize the functional and structural heterogenicity of the liver lobule.

Discussion to be opened by JAMES C. RESPESS, Charlottesville, Va.

The Clinical Usefulness of the Serum Leucine Aminopeptidase (LAP).

BENJAMIN B. WEISIGER and CHARLES M. CARAVATI, Richmond, Va.

The enzyme leucine aminopeptidase (LAP) in the serum was determined in 350 patients with various diseases, particularly cirrhosis, hepatitis and hepatic metastases. Pancreatic carcinoma and pancreatitis were also studied. Several patients were studied on repeated admissions. The LAP was correlated with the standard liver function tests. Highest values were seen in metastatic disease of the liver and in pancreatic carcinoma with obstruction of the common bile duct. High values were obtained also in decompensated cirrhosis and fatty liver where its rise paralleled the modest rise in transaminase but fell more slowly with recovery.

Discussion to be opened by MARTIN S. KLECKNER, JR., Paducah, Ky.

Preliminary Observations on the Clinical Usefulness of Determining Bromsulphalein and its Metabolic Products.

ROBERT D. SPARKS and GABRIEL L. PLAA, New Orleans, La.

A method for separation and determination of concentration of the major bromsulphalein metabolites has been utilized in combination with total bromsulphalein determination for this study. The pattern of retention of the metabolite and parent compound was studied at 15, 30, and 45 minutes after injection in normal and abnormal patients. A preliminary report of the results as demonstrated by a few characteristic cases will be presented.

Discussion to be opened by JOHN T. SESSIONS, JR., Chapel Hill, N. C.

Thymol Turbidity and Flocculation as Screening Tests.

W. ROY HANCOCK and JAMES L. BORLAND, Jacksonville, Fla.

Thymol turbidity and flocculation reactions are simple, rapid, sensitive, fairly specific, and reproducible tests for detection of hepatic cell injury. Data derived from using these tests in screening of blood prior to transfusion, and in the detection of liver diseases in an active gastroenterology practice will be presented. Correlation with the clinical course and other liver function tests will be shown.

Discussion to be opened by JOHN R. NEEFE, St. Petersburg, Fla.

Examination of the Upper G.I. Tract with the Fiberscope.

BASIL I. HIRSCHOWITZ, Birmingham, Ala.

Examination of the upper G.I. tract in over 30 patients, with an improved model of the Fiberscope, an endoscopic instrument employing the glass fiber principle, elicited the following comparison with the standard semi-rigid gastroscopes: (1) the instrument has the same diameter, but is flexible throughout its length, eliminating any danger of damage to the G.I. tract and minimizing discomfort to the

patient; (2) the view of the mucosa of the stomach is about as good as with the standard instrument; and (3) the instrument can be passed through the pylorus and through a gastroenterostomy, allowing a direct view of mucosal damage or ulceration.

Discussion to be opened by DAVID H. JOHNSTON, Lexington, Ky.

Goblet Cells in Disease of the Stomach.

GEORGE V. ROHRER, Oklahoma City, Okla.

Sections of gastric mucosa from patients having either gastric cancer, gastric ulcer, duodenal ulcer, pernicious anemia, achlorhydria or normal stomachs, were studied for frequency of occurrence of intestinal metaplasia and goblet cell formation and for the staining characteristics of the goblet cell mucus. The histological changes were found in all patients with cancer and pernicious anemia and less frequently in the other diseases studied. The goblet cell mucus contains both acid and neutral mucopolysaccharide.

Discussion to be opened by ROBERT S. NELSON, Houston, Texas.

Intermission—Visit Exhibits

***Panel Discussion:* Electrolyte Alterations in Gastrointestinal Disorders.**

Moderator: CARL A. MOYER, St. Louis, Mo.

Panel Members:

HARVEY R. BERNARD, St. Louis, Mo.
BASIL I. HIRSCHOWITZ, Birmingham, Ala.
EDWARD E. OWEN, Durham, N. C.

Monday, October 31

6:00 p.m.—Cocktail Hour and Dinner, Coronado Hotel, Crystal Room. Cocktails will be served on a cash basis and cost of the dinner will be $7.50 per person.

Tuesday, November 1, 9:00 a.m.

Kiel Auditorium

Unusual Manifestations of Abdominal Lymphoma.

RAYMOND T. DOYLE, Durham, N. C.

It is the purpose of this report to reemphasize the different ways abdominal lymphoma may present, and to suggest that it be considered more often in the differential diagnosis of abdominal disease. Five patients seen during the past year on one service are presented in detail. The initial diagnoses were sprue, carcinoma of the pancreas, infectious hepatitis, and hepatoma superimposed on cirrhosis. The histologic diagnosis in each patient was a malignant lymphoma.

Discussion to be opened by BELTON G. GRIFFIN, Houston, Texas.

The Carcinoid Syndrome: Its Diagnosis and Management.

J. ARNOLD BARGEN, Temple, Texas

The clinical manifestations of carcinoid tumors and their association with the release of excessive amounts of serotonin into the circulation will be discussed. The symptom of flushing, occasionally seen in patients with carcinoid tumors, will be depicted in a visual presentation. Methods of diagnosis in carcinoid tumors will be described. Life history of patients with these tumors will be outlined.

Discussion to be opened by JOHN T. SESSIONS, JR., Chapel Hill, N. C.

Whipple's Disease.

W. CROCKETT CHEARS, JR., Dallas, Texas;
JULIAN M. RUFFIN, Durham, N. C.

Twelve cases of Whipple's disease, the largest reported series from one institution, have been seen at Duke Hospital since 1935. The typical clinical picture consists of the triad of diarrhea, arthralgia and lymphadenopathy, but weight loss and hypotension are common findings. Formerly, the diagnosis was made only at laparotomy or autopsy but more recently the diagnosis has been established by peripheral lymph node or peroral intestinal biopsy. Treatment with antibiotics and adrenal steroids has been gratifying with five patients alive and well three months to six years after diagnosis.

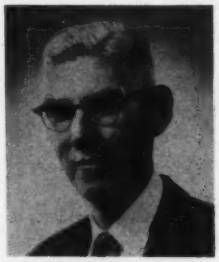
Discussion to be opened by W. L. ALSOBROOK, Nashville, Tenn.

Nausea and Vomiting: Clinical Evaluation of Torecan.

DONOVAN C. BROWNE and ROBERT D. SPARKS, New Orleans, La.

The development of the theories of nausea and vomiting with accepted neurophysiologic mechanism is presented. The clinical evalution of Torecan as an anti-emetic agent in over 300 cases is documented. Toxicity, tolerance, mode of action, and indications are summarized.

Discussion to be opened by JOHN R. KELSEY, Houston, Texas.



GUEST SPEAKER

WADE VOLWILER, M.D.

Seattle, Wash.

Professor of Medicine and Head, Division of Gastroenterology, Department of Medicine, University of Washington School of Medicine.

The Dysproteinemias.

Dysproteinemia means either (1) a gross disproportion between the normal components of the plasma proteins, or (2) a gross qualitative abnormality in the varieties of plasma proteins present. Dysproteinemias of the first group are due to gross increases or decreases of specific major components. Those of the second group may be caused either by (a) virtual absence of a normal major component, or (b) the appearance of large amounts of an unusual protein not ordinarily identified among normal plasma proteins. Bodily disturbances which lead to dysproteinemias lie within the four general mechanisms which always determine the concentration of proteins in plasma: synthesis, destruction, internal distribution and external loss. Frequently, disturbances of more than one of these general mechanisms may exist.

Giant Hypertrophy of the Gastric Mucosa, Hypoproteinemia and Edema (Menetrier's Disease).

SPAULDING SCHRODER, Atlanta, Ga.

A 10 year old white male developed nausea, vomiting and progressive ansarca seven weeks after repair of interatrial septal defect using extracorporeal circulation. Laboratory studies revelaed hypoalbuminemia. Vomitus was described as resembling "egg white." G.I. series revealed markedly hypertrophied gastric folds, interpreted as probable neoplasm. Gastroscopy revealed hypertrophied gastric rugae with no ulcerations. Biopsy of gastric mucosa revealed findings consistent with Menetrier's disease. He recovered spontaneously, has had no recurrences, and follow-up G.I. series is normal.

Methodology in the Study of Protein-Losing Gastroenteropathy.

JOHN D. DAVIDSON, St. Louis, Mo.;
ROBERT S. GORDON, JR., Bethesda, Md.

The purpose of this paper is to review briefly the development of technics which have become available to demonstrate and study the phenomenon of excessive loss of protein into the gut. The methods will be reviewed in chronologic order of development. The details of technic, the advantages as well as limitations of each method, and the range of values obtained in normal and pathologic states, will be mentioned. The attributes of an ideal method will be described.

Discussion to be opened by N. C. HIGHTOWER, Temple, Texas.

Intermission—Visit Exhibits

***Panel Discussion:* The Role of Diet in Present Day Management of Gastrointestinal Disease.**

Moderator: DONALD F. MARION, Miami, Fla.

Panel Members:

JULIAN M. RUFFIN, Durham, N. C.
HARRISON J. SHULL, Nashville, Tenn.
JOHN R. NEEFE, St. Petersburg, Fla.
JOHN T. SESSIONS, JR., Chapel Hill, N. C.

Business Session.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

A joint meeting of the Sections on Gastroenterology, Pathology, Radiology and Surgery.

***Panel Discussion:* A Symposium on Peptic Ulcer.**

Moderator: GUY HORSLEY, Richmond, Va.

Part I—Gastric Ulcer

Pathology—SIDNEY SALTZSTEIN, St. Louis, Mo.
Radiology—WENDELL SCOTT, St. Louis, Mo.
Gastroenterology—WADE VOLWILER, Seattle, Wash.
Surgery—JAMES E. THOMPSON, New York, N. Y.

Intermission—Visit Exhibits

Part II—Duodenal Ulcer

Pathology—SIDNEY SALTZSTEIN, St. Louis, Mo.
Radiology—JOHN D. REEVES, Gainesville, Fla.
Gastroenterology—CHARLES M. CARAVATI, Richmond, Va.
Surgery—JAMES E. THOMPSON, New York, N. Y.

SECTION ON GENERAL PRACTICE

Officers

Chairman.....CARROLL L. WITTEN, Louisville, Ky.
Vice-Chairman.....ROBERT B. BASSETT, St. Louis, Mo.
Secretary.....BARNEY W. FINKEL, St. Louis, Mo.

Hosts from the Saint Louis Medical Society:

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FOSTER A. DILL
REYNOLDS L. EMERSON
WALTER C. GRAY
JOHN G. KELLETT
CARL H. LINDEMAN
CHARLES E. MARTIN
CHARLES O. METZ
WILBUR A. MULLARKY
ALBERT J. SAUSVILLE
CHARLES T. SHEPHERD
ELLSWORTH A. WESTRUP
LEON F. WEYERICH

Presentations limited to twenty minutes, including time required for lantern slides and/or motion pictures; the Chairman and out-of-territory essayist to be allowed thirty minutes. Discussion limited to five minutes.

Wednesday, November 2, 9:00 a.m.

Kiel Auditorium

A joint meeting of the Sections on General Practice and Public Health.

Epidemiology of Viral Hepatitis and Related Diseases.

JAMES O. MASON, Atlanta, Ga.

Viral hepatitis, caused by at least two hepatotropic agents not yet identified by cultural or serological methods, remains an unsolved communicable disease problem. Current epidemiological trends suggest that the 1960-1961 hepatitis season will be a major one in terms of past experience, and well over 40,000 cases are expected to occur in the nation during the next year. Ultimate control of hepatitis will depend upon information derived from accurate studies and long term follow-up of cases and outbreaks.

A Cooperative Program for Care of the Chronically Disabled.

SUMNER Y. ANDELMAN, Tulsa, Okla.

Care of the chronically ill revolves about a comprehensive program based on preventive measures, periodic health surveys, therapy of diseases found and rehabilitation. The family physician should play the role of coordinator, but he must enlist the help of other specialties and ancillary groups. A very helpful, but often neglected adjunct in therapy is the public health nurse or the visiting nurse.

Etiology and Therapy of Diabetic Retinopathy—A New Approach.

JOHN K. FINLEY, Haddonfield, N. J.

Serum chylomicron levels were found elevated in diabetics regardless of their state of glucose control. This finding may indicate the existence of a primary disturbance of fat metabolism in diabetes other than the disturbance occurring as a result of inadequate glucose utilization. This observation led to the use of heparin in an attempt to reduce the lipemia in patients with diabetic retinosis. A reversal of characteristic lesions of diabetic retinosis has been observed in patients upon this therapy.

Intermission—Visit Exhibits

A New Agent for Symptomatic Relief of Migraine Headache.

ROBERT E. RYAN, St. Louis, Mo.

This paper will discuss the use of a new agent to be used in relieving the symptoms of a typical attack of migraine. This preparation is entirely new, as is its method of application. The results obtained with this preparation are very encouraging.

A New and Improved Method for the Treatment of Trichomonas Vaginalis and Other Causes of Vaginal and Cervical Leukorrheas.

KARL J. KARNAKY, Houston, Texas

The paper will consist of the author's newest and improved method of treating vaginal and cervical infections, based on his past 28 years of research on vaginal and cervical leukorrhea. The author has now discovered how to lower the vaginal pH to 1.0 without burning the vagina. Low pH has given the best results in treatment of vaginal and cervical leukorrhea. A new vaginal medication retainer will be presented. New vaginal and cervical adhesions will also be presented.

Wednesday, November 2

12:00 noon—Social Hour and Luncheon, Sheraton-Jefferson Hotel, Ivory Room.

Wednesday, November 2, 2:00 p.m.

Kiel Auditorium

Chairman's Address: Disaster Mobilization.

JERROLD M. MICHAEL, Washington, D. C.

The program of the Public Health Service in the field of medical aspects of civil defense is to be discussed. Particular emphasis will be placed on the baseline training program for physicians being conducted by the Division of Health Mobilization. The reserve officer activities and available resource literature will be discussed in detail.

Discussion to be opened by CARROLL L. WITTEN, Louisville, Ky., Chairman.

A Critical Re-evaluation of Community Patch Test Program After 300,000 Cases.

WALTER C. GRAY, St. Louis, Mo.

A special committee appointed by the St. Louis Tuberculosis

and Health Society met several times earlier this year to evaluate the overall effectiveness of the tuberculin patch test program in St. Louis County schools. After hearing reports of subcommittees appointed to review the literature and to do comparative cost studies both in time and manpower several decisions were reached: (1) The present program has been most effective as a health education demonstration and also as a case finding tool. (2) The literature fails to reveal any large scale well controlled comparative studies of the Mantoux test and Volmer patch test. (3) The above committee is undertaking such a program as a special project. (4) Added cost and time involved preclude changing to the Mantoux test in our area at this time.

Intermission—Visit Exhibits

Endocrine Aspects of Post-Surgical Recovery.

HERBERT S. KUPPERMAN, New York, N. Y.

The effect of certain steroids upon protein anabolism is desirous in the postoperative patient as well as in those with a negative protein balance due to debilitating disease or iatrogenic causes. In addition, the anabolic steroids achieve some measure of benefit in growth deficiencies in children where there is evidence of normal or retarded bone age. The effect of these steroids upon protein loss in patients exposed to surgery, as well as their effectiveness in promoting a positive protein balance will be discussed. The value of the anabolic steriods is enhanced if their androgenicity is diminished. A discussion of their desirable and undesirable side effects will be offered. Their indications will be stressed.

Seborrhea Capitis and Associated Diseases.

IRWIN I. LUBOWE, New York, N. Y.

The incidence of seborrhoeic capitis, its etiology, pathogenesis and treatment are presented. The uses of the newer anti-seborrhoeic remedies including hexochlorophene, bithionol surfactants, particularly a non-toxic newer agent, biphenamine hydrochloride, are outlined. Diffuse scalp hairfall, a recent increasing entity in the female, are described. Therapeutic measures and recommendations for scalp care and hygiene are discussed.

GUEST SPEAKER

JOHN W. SIGLER, M.D.

Detroit, Mich.

Associate Physician, Division of Arthritis, Henry Ford Hospital.

Arthritis in Office Practice.

The types of arthritis and related conditions frequently encountered in office practice will be discussed. Salient features of these entities will be outlined. The necessity for accurate diagnoses and individually tailored therapy will be emphasized.

Business Session.

SECTION ON GYNECOLOGY

Officers

Chairman..... ROBERT N. CREADICK, Durham, N. C.
Vice-Chairman..WM. DURWOOD SUGGS, Richmond, Va.
Secretary....SAMUEL BUFORD WORD, Birmingham, Ala.

Hosts from the Saint Louis Medical Society:

JOSEPH A. HARDY, *Chairman*
WILLARD W. ALLEN
A. N. ARNESON
BRYCE H. BONDURANT
MYRON W. DAVIS
E. LEE DORSETT
JOHN E. HOBBS
GREY JONES
FREDERICK W. MARTIN
RICHARD PADDOCK
JAMES PENNOYER
WILLIAM H. VOGT, JR.
GEORGE J. L. WULFF, JR.

Presentations limited to twenty minutes, including time required for lantern slides and/or motion pictures; the Chairman and Guest Speaker to be allowed thirty minutes. Discussion limited to five minutes.

Monday, October 31, 2:00 p.m.

Kiel Auditorium

Obstetrical and Gynecological closed circuit television program originating from the St. Louis City Hospital.

2:00-3:00 p.m. Diagnosis of Cancer of Cervix. Diagnostic Demonstrations.

A. N. ARNESON, St. Louis, Mo., Moderator
JAMES H. FERGUSON, Miami, Fla.
HARLAN SPJUT, St. Louis, Mo.
JOHN WALL, Houston, Texas

3:00-4:00 p.m. Vaginal "Culdesac" Suspension of the Uterus. Panel Discussion and Operative Procedure.

GARTH JARVIS, Galveston, Texas, Moderator
JOSEPH HARDY, JR., St. Louis, Mo.
LEO J. HARTNETT, St. Louis, Mo.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

A Comparison of Cytologic and Histologic Findings in Patients Hospitalized for Pelvic Surgery.

WILLIAM T. LADY, LOIS I. PLATT and JED W. PEARSON, JR., Washington, D. C.

Endometrial and cervical smears, and sections of tissue specimens obtained in the operating rooms of the George Washington University Hospital were compared. Two hundred sixty-one consecutive patients over 40 years of age hospitalized for pelvic surgery were selected for this study. This comparison showed a high degree of similarity of classification of the cytologic and histologic specimen from each patient. The authors believe that satisfactory endometrial aspirations are best obtained by physicians skilled in gynecological procedure. They also feel that a carefully taken endometrial aspiration is accurate in locating the anatomic origin of malignant cells.

Discussion to be opened by JAMES HENRY FERGUSON, Miami, Fla.

Colposcopy.

THEODORE K. DAMPEER, JR., New Orleans, La.

In the United States colposcopic investigation of the cervix and lower genital tract, as a means of early cancer detection, is not yet a widely accepted pratcice. Just what this method is, what can be expected of it, and reasons which possibly explain why it is not widely accepted today in this country will be dealt with. It is not advocated that this method replace the time-proven Pap smear but used in conjunction to discover more cases of early carcinoma. There is no doubt that those who are familiar with its use have an infinitely clearer picture of not only malignant and premalignant lesions of the cervix, but benign conditions as well.

The Use of the Colposcope in Gynecological Practice.

ROBERT L. CHALFANT, Nashville, Tenn.

The paper is an evaluation of the use of the colposcope in a gynecological practice for the past seven years. There is a description of the instrument and the method of its use in the examination of the cervix uteri. The findings in the normal as well as the abnormal cervix are described, including both benign and malignant conditions. The value of the instrument as well as its limitations of use are discussed.

Intermission—Visit Exhibits

GUEST SPEAKER

ROGER B. SCOTT, M.D.

Cleveland, Ohio

Associate Professor of Obstetrics and Gynecology, Western Reserve University School of Medicine; Associate Director of Department of Obstetrics and Gynecology, University Hospitals of Cleveland.

Fifteen Years' Experience with External Endometriosis at University Hospital of Cleveland.

An analysis of 590 proved cases of external endometriosis encountered over a 15 year period will be given. Unusual cases will be demonstrated. Some of the common misconceptions in symptomatology will be pointed out and pregnancies which have followed conservative surgery will be stressed.

On the Concept of Cure.

FRED C. D. COLLIER, Birmingham, Ala.

In the present day of medical therapy where effective treatment is predicated not only on accurate diagnosis, but on proper implementation of all modalities of therapy, it is important to realize what is implied by the term "cure." In the field of gynecology as, for that matter, in all medical fields, "cures" must be analyzed not only in terms of groups of individuals, but in terms of the individual, suffering from the disease, the disease from which she is suffering and the effect of therapy. Consideration will be given to the application of the term "cure" to conditions of inflammatory, traumatic and neoplastic etiology. This presentation is more of a consideration of the implications of cure, than a statistical review of results of therapy.

Wednesday, November 2, 9:00 a.m.

Kiel Auditorium

Conization in Pregnancy for Evaluation of Carcinoma *in Situ*.

JOHN R. BOTTOMY, Atlanta, Ga.

Carcinoma in situ of the cervix and pregnancy have been found, in recent years, to coexist with increasing frequency. Because of this frequent coexistence special evaluation of the lesion and management of pregnant women harboring this surface malignancy is of great current interest. Conization of the cervix of 16 pregnant patients was done to confirm the diagnosis of carcinoma in situ and to determine whether or not invasion was present. Microscopic examination of tissue obtained by conization in these 16 patients together with a report of the clinical course of their pregnancies is outlined and discussed.

Discussion to be opened by LAWRENCE HESTER, Charleston, S. C.

Abnormal Uterine Bleeding Subsequent to Pelvic Surgery.

KENNETH R. BALDWIN and WILLIAM MANSON, Richmond, Va.

This report consists of a detailed analysis of one thousand cases of abnormal uterine bleeding diagnosed in the hospitals of the Medical College of Virginia. Multiple factors are carefully evaluated in an attempt to correlate them with abnormal uterine bleeding. Special emphasis is laid on the relationship of previous pelvic surgery, notably tubal ligation, to this gynecologic disorder.

Discussion to be opened by WILLIAM MANSON, Richmond, Va.

Chairman's Address: Gynecologic Misapprehensions.

ROBERT N. CREADICK, Durham, N. C.

Business Session.

Intermission—Visit Exhibits

The Use of Gynecography in Pelvic Diagnosis.

HARRY LITTLE and JOHN HUTCHINSON, Galveston, Texas

In an attempt to more precisely delinetate gynecologic pathology prior to the institution of therapy and/or laparotomy, pneumopelvic radiologic studies (gynecography) have been used in selected patients during the past several years. The technics, indications, and contraindications are described. The results, alone or in combination with hysterosalpingography are presented and compared to the subsequent findings at the time of pelvic surgery. The results indicate that this technic has an adjuvant role in the diagnosis of pelvic gynecologic masses.

Discussion to be opened by L. C. POWELL, JR., Galveston, Texas.

Conservative Surgery for Dermoids.

PHIL C. SCHREIER and ALBERT M. ALEXANDER, Memphis, Tenn.

It is no longer justifiable to remove an ovary for a dermoid cyst per se, even when no ovarian substance can be demonstrated at the time of surgery. Long follow-ups of a series of patients in whom bilateral and unilateral dermoid cystectomy was done with preservation of completely functioning ovaries including successful pregnancies are reported. The presentation is illustrated with slides revealing the technic and follow-up condition of reconstructed ovaries.

Discussion to be opened by C. P. TAYLOR, JR., Ada, Okla.

Wednesday, November 2, 12:00 noon

Sheraton-Jefferson Hotel, Crystal Room

Joint Luncheon with Section on Obstetrics

Wives invited

ROGER B. SCOTT, Cleveland, Ohio, and EDWARD C. HUGHES, Syracuse, N. Y., Guests

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SECTION ON INDUSTRIAL MEDICINE AND SURGERY

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JACOB G. PROBSTEIN
CARL J. REIS
DOUGLAS A. RIES

Presentations limited to thirty minutes, including time required for lantern slides and/or motion pictures; the out-of-territory essayist to be allowed one hour. Discussion limited to five minutes.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

Compensable Heart Disease? How Can the Cardiologist Help the Industrial Physician?

SIDNEY SCHERLIS, Baltimore, Md.

With heart disease more frequent, there are increasing attempts to link initial development of or aggravation of, heart disease to one's activity at work. The resulting problems are, therefore, (1) the need for effective and practical means of recognizing heart disease, not only prior to employment, but during the course of employment as well; (2) the clarification of medical principles for determining the possible relationship between one's employment and heart disease. Cardiological aspects of these problems will be discussed.

Discussion to be opened by H. CHARLES BALLOU, White Sulphur Springs, W. Va.

The Medical Doctor as an Aid to the Administration of Justice.

JOHN K. REGAN, St. Louis, Mo.

This paper will be on the role of the industrial physician as an expert witness and some of the problems of lawyers and litigants with expert witnesses.

Discussion to be opened by MACROY GASQUE, Pisgah Forest, N. C.

Intermission—Visit Exhibits

An Insurance Point of View of Industrial Medicine.

GEORGE P. SAWYER, Chicago, Ill.

Emphasis for the need of disability control through effective medical care will be discussed. The part played in plant medical programs in developing group accident and health control will also be covered.

Discussion to be opened by RICHARD A. SUTTER, St. Louis, Mo.

The Role of the Industrial Physician in Compensation Matters as Seen from the Legal Point of View.

THEODORE C. WATERS, Baltimore, Md.

Emphasis of the fact that in practically every contested compensation case the Commissioner is faced with conflicting medical testimony. The Commissioner should have the right to refer the matter to an independent medical examiner for expression of opinion. There are two principal issues involved in compensation matters: (1) the fact of injury and its relationship to employment, and (2) the evaluation of disability.

Discussion to be opened by JAMES L. HUGHES, Greer, S. C.

Chairman's Address: The Industrial Physician—Where Is He Going?

L. A. PYLE, JR., Washington, D. C.

An appraisal of the industrial physician's status in this rapidly growing specialty of industrial medicine and surgery. A review of the various facilities in this field from the privately operated industrial medicine clinic dealing almost entirely with compensation cases to the large, company sponsored medical departments. A look at the increasing educational opportunities in this field.

Wednesday, November 2, 9:00 a.m.

Kiel Auditorium

Industrial Medicine as a Part of General Practice.

ROBERT E. ECKARDT, Linden, N. J.

Small plants employing less than 500 workers have the highest frequency of on-the-job accidents. It is just this type of plant that receives its industrial medicine from the general practitioner. If this record is to be improved, the general practitioner must develop some understanding of modern industrial medicine and convey this understanding to management and safety personnel in these plants. This will result in benefits not only to the general practitioner, but also to the industry and the employee.

Discussion to be opened by GRADIE R. ROWNTREE, Louisville, Ky.

GUEST SPEAKER

JOSEPH ALBAN QUIGLEY, M.D.

Cincinnati, Ohio

National Lead Company of Ohio, Contract Operator for the U. S. Atomic Energy Commission.

Radiation—Industry's Best Understood Problem.

The health problems associated with the handling of uranium will be discussed. The hazards of both external radiation and internal radiation will be covered. Methods of evaluating the hazards and methods of control will also be explained. Emphasis will be placed on the "health and safety team" in industry. Recommendations will be made to the industrial physician.

Intermission—Visit Exhibits

The Industrial Hygienist's Contributions in the Field of Occupational Health.

ELMER P. WHEELER, St. Louis, Mo.

Professional industrial hygienists with training and experience in physical sciences and engineering collaborate with industrial physicians and medical scientists and share responsibility for maintaining the health, productivity and well-being of workers. The non-medical industrial hygienist concentrates on the recognition, evaluation and control of environmental factors and stresses associated with work and work operations thus supplementing the physician's primary interest—the worker himself. To attain the mutual objective of the optimum in occupational health services, the mutual dependence of physicians, industrial hygienists, nurses and safety personnel must be recognized.

Discussion to be opened by C. H. JOHNSON, East Alton, Ill.

The Disability Decision—(Film).

FREDERICK J. BALSAM, Baltimore, Md.

Business Session.

SECTION ON MEDICINE

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BARRETT L. TAUSSIG

Presentations limited to twenty minutes, including time required for lantern slides and/or motion pictures; the Chairman and out-of-territory essayist to be allowed thirty minutes. Discussion limited to five minutes.

Monday, October 31, 2:00 p.m.

Kiel Auditorium

A joint meeting of the Sections on Medicine and Pathology.

A Symposium on the Adrenal Cortex.

Systemic Disease and Adrenal Cortical Response.

FLOYD R. SKELTON, New Orleans, La.

Morphologic and functional responses of the adrenal cortex to disease states having a prominent stress component will be characterized and discussed. Similar consideration will be

given to zona glomerulosal and aldosterone secretory changes in disease. Adrenal cortical response in certain diseases related to hyperplasia and hypertrophy will be reviewed.

Discussion to be opened by FRED V. LUCAS, Columbia, Mo.

Clinical Aspects of Adrenal Cortical Hyperfunction.

S. RICHARDSON HILL, Birmingham, Ala.

The clinically manifest symptoms and signs of hypercortisolemia of the primary and secondary varieties will be discussed. Primary aldosteronism and pseudohyperaldosteronism will also be discussed along with the niceties of differentiation of these two syndromes. Iatrogenic adrenal cortical hyperfunction and the complications attendant thereon will also be characterized and illustrated.

Clinical Aspects of Adrenal Cortical Hypofunction.

WILLIAM H. DAUGHADAY, St. Louis, Mo.

The classic syndrome of adrenal cortical hypofunction as exemplified by Addison's disease will be discussed in relationship to the pathophysiology of the symptoms and signs of this disorder. Similarly will be discussed adrenal apoplexy and the less commonly recognized syndromes of adrenal cortical hypofunction and failure.

Tumors of Adrenal Cortex.

ROBERT M. DIMMETTE, Bethesda, Md.

There are numerous tumors, both benign and malignant, of the adrenal cortex which will be briefly presented in an outline form. The tumors that need further differentiation from the standpoint of malignancy will be discussed and illustrated. The differentiation between nodular hyperplasia, adenoma of the cortex and carcinoma is a problem to the surgical pathologist. The correlation of these three tumorous lesions will be made to the known and recognized clinical syndromes.

Intermission—Visit Exhibits

***Panel Discussion:* Disorders of the Adrenal Cortex.**

Moderator: PETER H. FORSHAM, San Francisco, Calif.

Panel Members:

S. RICHARDSON HILL, Birmingham, Ala.
WILLIAM H. DAUGHADAY, St. Louis, Mo.
FLOYD R. SKELTON, New Orleans, La.
ROBERT M. DIMMETTE, Bethesda, Md.
FRED V. LUCAS, Columbia, Mo.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

Chairman's Address: What Should the Practicing Physician Know about Statistical Principles?

KELLY M. WEST, Oklahoma City, Okla.

Newer Aspects of Cancer Chemotherapy.

RALPH JONES, JR., Miami, Fla.

As a result of the Cooperative Cancer Chemotherapy Groups of the USPHS, a variety of chemical agents have been used in the treatment of leukemias and lymphomas as well as in various carcinomas and sarcomas. A discussion of the latest and best agents for use in these neoplastic conditions will be discussed. The treatment and dosage schedule of some of the newer agents including cyclophosphamide, eponate, and other new mustard compounds will be presented.

Discussion to be opened by R. WAYNE RUNDLES, Durham, N. C.

GUEST SPEAKER

PETER H. FORSHAM, M.D.

San Francisco, Calif.

Professor of Medicine and Pediatrics and Active Physician, University of California Hospitals.

Recent Advances in the Understanding and Treatment of Diabetes.

The existence of two distinct types of diabetes is now firmly established, viz., the prematurity onset type with no demonstrable insulin in the pancreas or the plasma, and the postmaturity onset type with normal amounts of insulin in the pancreas that cannot be adequately discharged in response to a rise in blood sugar. Sulfonylureas will activate insulin discharge, and apparently prematurity type diabetes can improve in carbohydrate tolerance when given sulfonylureas early. Their use will be discussed. DBI in addition to insulin as a stabilizer of brittle diabetes will also be covered. The desirability of two injections of medium range insulin will be illustrated as optimal in slowing down the small vessel disease. The latter will be discussed in detail in terms of pathogenesis, prevention and possible improvement in hypoglycemia. The importance of exercise and the existence of hypoglycemic factors emerging from exercised muscle is increasingly recognized. The optimum program for both young and old diabetics will emerge from the discussion.

Intermission—Visit Exhibits

Study of Anemia of Hepatic Disease Utilizing Radiochromium.

MADISON CAWEIN, Lexington, Ky.

In order to quantitate erythrocyte survival time and gastrointestinal hemorrhage in various disorders of the liver, the erythrocytes of 32 patients having either cirrhosis, hepatitis, or malignant disease involving the hepatobiliary system were labeled with chromium 51 and erythrocyte survival rates were determined as well as the levels of radiochromium appearing in the stools. Only four of the patients (13%) demonstrated survival times within the normal range whereas the remainder had shortened survival times indicating a hemolytic process as the cause of the anemia. In addition four of the patients with shortened erythrocyte survival times had evidence of gastrointestinal blood loss averaging 7 to 58 ml. per day. Evidence will be presented that regenerative activity of erythropoietic tissue in this group of patients was considerably less than maximum. There was no direct evidence for maturation arrest of erythropoiesis.

Discussion to be opened by CARL V. MOORE, St. Louis, Mo.

The Value of Norepinephrine Infusion in the Differentiation of Stenotic and Regurgitant Lesions of the Mitral Valve.

LEONARD S. SOMMER and IGNATIOS J. VOUDOUKIS, Miami, Fla.

Since an apical systolic murmur may be found in pure mitral stenosis or in combined mitral stenosis and insufficiency, it is essential to recognize associated significant mitral insufficiency in such a situation particularly when cardiac surgery is contemplated. The influence in norepinephrine induced hypertension on mitral valvular function during right and left heart catheterization will be presented. In addition, a discussion of the alterations in pulmonary capillary and left atrial pressure tracings during critically induced systemic hypertension by norepinephrine infusion with clinical, surgical and postmortem findings with particular regard to mitral valve morphology will be carried out. Data will be presented suggesting that this method may be useful in the detection of hemodynamically significant degrees of mitral insufficiency associated with mitral stenosis. In addition, correlation of pulmonary capillary and left atrial pressure tracings during norepinephrine infusion indicates that the differentiation may be made by right heart catheterization alone. The practical and potential value of this stress test of mitral valve dynamics in regard to closed and open heart surgery will be presented.

Discussion to be opened by TINSLEY R. HARRISON, Birmingham, Ala.

Business Session.

Wednesday, November 2, 9:00 a.m.

Kiel Auditorium

A joint meeting of the Sections on Medicine, Pathology and Urology.

***Panel Discussion:* A Symposium on Chronic Pyelonephritis.**

Moderator: GEORGE E. SCHREINER, Washington, D. C.

Panel Members:

Long-Term Control of Infection.

CHEVES M. SMYTHE, Charleston, S. C.

Obstruction, Instrumentation and Calculi and Their Effects on the Urinary Tract.

FRED K. GARVEY, Winston-Salem, N. C.

Pyelonephritis Lenta and Its Relationship to Malignant Hypertension.

OTTO SAPHIR, Chicago, Ill.

Prevention and Care of Chronic Pyelonephritis in Children.

KURT LANGE, New York, N. Y.

Connective Tissue Response and the Local Immune Reaction in the Kidney as Related to Pyelonephritis.

CUTTING B. FAVOUR, Washington, D. C.

Wednesday, November 2, 2:00 p.m.

Kiel Auditorium

Fibrinolytic Enzymes in Vascular Occlusion.

SOL SHERRY, St. Louis, Mo.

The development of thrombolytic or clot dissolving agents represents a new and exciting chapter in therapeutics. Interest in this development has progressed so quickly that some physicians are applying "thrombolytic therapy" routinely in the management of acute thromboembolic disorders. However, this aura of accomplishment exceeds the hard core of achievement and some disappointment may be anticipated before a practical effective form of therapy evolves. Nevertheless certain basic and therapeutic principles have been established which, if properly exploited, will lead to the effective use of fibrinolytic agents. This presentation will review briefly the principles underlying the development of thrombolytic agents; the problems which remain to be solved and the limitations inherent in the use of currently available agents; and the outlook for the future.

Discussion to be opened by WARREN N. BELL, Jackson, Miss.

Chemotherapy of Pulmonary Tuberculosis.

A. H. RUSSAKOFF, Birmingham, Ala.

The combination of the use of antimicrobial agents and the introduction of effective resectional surgery for tuberculosis has resulted in a dramatic decline in mortality rate, a change in the epidemiologic pattern, and a shift from sanatorium to home care of patients with tuberculosis. In addition to the well known triad of streptomycin, paraamino-salicylic acid and nydrazid, four antimicrobial agents in the form of viomycin, pyrizinamide, seromycin and kanamycin have joined the ranks of the antituberculous agents. Also of value under certain circumstances are the corticosteroids. Because of the variety of agents available for the active medical treatment of tuberculosis, the problem of which agent or combination of agents arises. The discussion will be concerned with which of these agents to use and which of the agents to replace another, or which agent to add under special circumstances in the course of therapy.

Discussion to be opened by CHARLES A. LEMAISTRE, Dallas, Texas.

Clinical Significance of the Rheumatoid Factor.

MORRIS ZIFF, Dallas, Texas

The mechanism of the various tests for the rheumatoid factor will be discussed and the reliability of testing procedures will be evaluated. A correlation of titer of the rheumatoid factor with various aspects of rheumatoid arthritis will be given. The presence of the factor in asymptomatic relatives of patients with rheumatoid arthritis will be described and the significance of this phenomenon discussed.

Discussion to be opened by HOWARD L. HOLLEY, Birmingham, Ala.

Intermission—Visit Exhibits

Bacterial Endocarditis.

JOHN F. JACKSON and FRED ALLISON, JR., Jackson, Miss.

Current trends in specific etiologic agent, disease manifestations, therapy and prognosis of bacterial endocarditis will be delineated. A discussion of the role of the staphylococcus and the streptococcus as etiologic agents and combination antibiotic therapy with penicillin and streptomycin will be developed. Complications in the form of uremia, congestive heart failure, septic coronary embolization and microscopic myocardial infarctions will be discussed.

Discussion to be opened by ROBERT PAINE, St. Louis, Mo.

Problems in the Management of Chronic Pulmonary Diseases.

BEN V. BRANSCOMB, Birmingham, Ala.

Intractable cough, disabling exertional dyspnea, recurrent infections with inability to raise sputum, and symptoms of pulmonary hypertension of months or years duration are among the vexing problems in the management of chronic obstructive pulmonary emphysema. Included in the discussion of the treatment of these conditions are current concepts in the use of antibiotics, adrenal steroids, aerosol and positive pressure therapy, oxygen, proteolytic enzymes, and special coughing and breathing exercises.

Discussion to be opened by LLOYD RAMSEY, Nashville, Tenn.

SECTION ON NEUROLOGY AND PSYCHIATRY

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ROBERT D. BROOKES
ARCHIE D. CARR
FRANK M. GROGAN
ANDREW B. JONES
LOUIS H. KOHLER
PAUL E. KUBITSCHEK
WILLIAM B. LYTTON
DAVID F. MENDELSON
WALTER L. MOORE
H. UNTERBERG

Presentations limited to twenty minutes, including time required for lantern slides and/or motion pictures; the Chairman to be allowed thirty minutes. Discussion limited to five minutes.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

Technics of Adolescent Psychotherapy Applicable to Medical Practice.

IRVIN A. KRAFT, Houston, Texas

This paper describes certain psychodynamic aspects of adolescence that are utilized in psychotherapy of adolescents. These considerations are then translated into suggestions for everyday usage in pediatric and other medical practice where more formal psychotherapy is not appropriate. Diagnostic and prognostic facets are emphasized also in the discussion. Adolescence is a period of development under more consideration by the practitioner and requires knowledge from psychiatry as well as endocrinology, etc., to handle it effectively.

Discussion to be opened by MARGARET GILDEA, St. Louis, Mo.

The Recognition and Management of the Neurotic Depressive Reaction.

CHARLES B. FULGHUM, Atlanta, Ga.

In this paper three case history fragments are presented, illustrating the types of patients frequently seen and referred to psychiatrists by general physicians and how these patients were handled by the psychiatrists. It is obvious in the discussion that these patients could have been as easily managed by the general physician. This paper will be augmented by a brief preliminary report of a double-blind study using antidepressant drugs.

Discussion to be opened by JOSEPH B. PARKER, Lexington, Ky.

Phobias: Their Development and Treatment.

MORGAN E. SCOTT, Atlanta, Ga.

A review of the theoretical basis of development of phobia is first considered: (1) the importance of childhood phobias on adult development is emphasized; (2) methods of mastery by the child of phobias are cited; (3) cases of adult phobias and childhood phobias are given with emphasis of each point; (4) the treatment of phobias is discussed; (5) a summary at the end reviewing these previous points.

Discussion to be opened by WILLIAM G. REESE, Little Rock, Ark.

Intermission—Visit Exhibits

GUEST SPEAKER

PERCIVAL BAILEY, M.D.

Chicago, Ill.

Executive Secretary, Illinois Psychiatric Training and Research Authority and the Illinois Psychiatric Council; Director of Research, Illinois State Psychiatric Institute.

Psychomotor Epilepsy: Five Years of Follow-ups.

Brachiovertebral and Temporal Catheter Angiography.

JOSE L. GARCIA OLLER, NORMAN NELSON, CHARLES MATHIRNE and WESLEY FERNANDEZ, New Orleans, La.

The newer technics of temporal and brachial artery catheter angiography are challenging the now well established percutaneous carotid and vertebral method. They promise avoidance of carotid artery injury, lack of interference with the cerebral circulation, great freedom in positioning the head for x-ray films, fewer complications, and more comfort for the patient. Thirty brachiovertebral and thirty temporal angiograms in critically ill patients are evaluated. The technic, reliability of filling of the vertebral and carotid circulations, anesthesia, complications and results are discussed. Finally, an attempt is made to define the indications for the newer procedures versus the percutaneous technic.

Discussion to be opened by WILLIAM F. MEACHAM, Nashville, Tenn.

Vulnerability to Development of a Stroke Secondary to Occlusion of the Internal Carotid Artery Evaluated by Angiography.

HOMER D. KIRGIS, RAEBURN C. LLEWELLYN and EDWARD MCG. PEEBLES, New Orleans, La.

Tolerance to interference with carotid blood flow is dependent, to a large degree, on the anatomic pattern of the circle of Willis. Unusual vulnerability to loss of a carotid flow can be recognized by angiographic demonstration of the branches of the internal carotid artery. Variations from the normal angiographic patterns and their clinical significance will be discussed.

Discussion to be opened by R. EUSTACE SEMMES, Memphis, Tenn.

Wednesday, November 2, 9:00 a.m.

Kiel Auditorium

Effects of Librium in Psychiatric Disorders.

IRVIN M. COHEN, Houston, Texas; TITUS H. HARRIS, Galveston, Texas

Methaminodiazepoxide (Librium), a tranquilizing drug chemically unrelated to any of the known psychotropic agents, was effective in reducing anxiety, agitation, and depression in 67% of 132 private psychiatric patients. In 15% of the improved group paradoxical reactions consisting of mild euphoria and increased motivation for activity occurred instead of the expected relaxing effects. Side-effects were minimal, and consisted almost entirely of ataxia and drowsiness which could be eliminated by reduction of dosage.

Discussion to be opened by NEVILLE X. MURRAY, San Antonio, Texas.

Evaluating the Suicidal Risk.

ALLAN Z. SCHWARTZBERG, Lowry Air Force Base, Colo.

The scope and magnitude of the problem of suicide is presented. Special emphasis is placed upon clear recognition of the signs and symptoms of depression. Several case illustrations are presented. A systematic outline for evaluating the suicidal risk is presented with emphasis on the communication of the suicidal intent. Seven specific indicators of the potential suicide are presented. Finally, the management and prevention of suicide are discussed, with special emphasis on securing adequate family cooperation and developing sound work relationships between the psychiatrist and other physicians.

Discussion to be opened by ERNEST H. PARSONS, St. Louis, Mo., and SAMUEL G. HIBBS, Tampa, Fla.

Chronic Dependency in Emotional Illness.

E. L. CAVENY, Birmingham, Ala.

This paper presents a brief description of dependency as found in the clinging infant and its resolution as achieved by satisfying its needs in reaching adulthood. Using this as a guideline, various faulty and unhealthy influencing situations which may prevent the dependency needs from achieving satisfaction in childhood are discussed, and how they may be continued on into later life. The remainder of the paper is devoted to the manner in which this chronic dependency furnishes the basis for a large percentage of emotional and behavioral disturbances, and finally how this material is detected and therapeutically approached.

Discussion to be opened by WILLIAM H. MCCULLAGH, Jacksonville, Fla.

Business Session.

Intermission—Visit Exhibits

The Day Hospital.

R. W. MCNICHOL and ARTHUR L. SEALE, Pineville, La.

The authors discuss briefly the philosophy of the day hospital and review the pertinent literature. They then present some of the statistics for one year's activity of a day hospital which is part of a mental hospital complex in the rural area of Louisiana. The day hospital is geographically adjacent to, but functions as a separate unit of the hospital. Certain effects that the day hospital has had on the attitude of the community and the physicians in the area are pointed out. Advantages of this type unit over the mental hygiene clinic are pointed out.

Discussion to be opened by ADDISON M. DUVAL, Jefferson City, Mo., and CHARLES WATKINS, New Orleans, La.

Selective Prefrontal Leukotomy in the Management of the Geriatric Patient with Mental Illness.

EDMUND A. SMOLIK and FRANCIS P. NASH, St. Louis, Mo.

In a period in which there is emphasis on the drug therapy of mental illness, there appears to be still a definite place for the well executed selective leukotomy in the management of mental illness. This is substantiated by our results in approximately 100 such patients who for one reason or another could not tolerate shock therapy or in whom drug therapy was unsatisfactory.

Discussion to be opened by JAMES W. WATTS, Washington, D. C.

Wednesday, November 2, 2:00 p.m.

Kiel Auditorium

Wilson's Hepatolenticular Degeneration.

BERTRAM E. SPROFKIN, Nashville, Tenn.

Two cases of this uncommon disorder are presented. One patient, after transient improvement on BAL therapy died in hepatic coma. Typical postmortem changes were encountered. The other patient, a young woman, was dramatically benefitted by BAL therapy, and then became progressively worse when her hypersensitivity prevented further treatment with this agent. Therapy was reinstituted in November 1958 with a low copper diet, dl-penicillamine and potassium sulfide. Her response has been excellent and maintained. Her course has been followed with serial moving picture studies.

Discussion to be opened by MARTIN L. TOWLER, Galveston, Texas, and O. RHETT TALBERT, Charleston, S. C.

Behavior Disorders in Epileptic Children.

LOUIS L. TUREEN, St. Louis, Mo.

Children frequently brought into the Neurologic Clinic for evaluation of behavior disorders, are found to have cerebral dysrhythmias characteristic of convulsive disorders. In such children the behavior is symptomatic of subclinical seizures. In other children with convulsions, aggressive and antisocial behavior can be related to environmental influences. Case histories of a small group of children are presented as illustrative. Discussion of the clinical aspects of the problem in management of these children is presented.

Discussion to be opened by EWALD W. BUSSE, Durham, N. C.

Chairman's Address: Tragedies with Tranquilizers.

ROBERT H. GROH, Washington, D. C.

This presentation will deal briefly with some of the more common "side effects" probably more properly termed "direct effects" of phenothiazine drugs, which should be familiar to all, as well as describe in detail several serious cases of extrapyramidal disorder, including a movie of a patient who died from what we believe to be the irreversible effects of phenothiazine drug effect.

Intermission—Visit Exhibits

Neurological Manifestations in Cervical Spondylosis.

O. RHETT TALBERT, Charleston, S. C.

Manifestations of involvement of cervical nerve roots, spinal cord, and occasionally vertebral artery may occur as the predominant or sole clinical evidence of disease of the cervical vertebrae. Since such manifestations may simulate coronary thrombosis, syringomyelia, spinal cord tumor, Menieres Syndrome, and other unrelated disorders, their recognition is of practical importance. Pertinent antomy is reviewed and illustrative case histories are presented. The importance of correct diagnosis of these cases in our aging population and medicolegal aspects are discussed.

Discussion to be opened by HENRY G. SCHWARTZ, St. Louis, Mo.

Localizing a Neurological Lesion.

R. E. FROELICH, Augusta, Ga.

A color movie study of a patient with a cervical cord neurofibroma is presented. Preoperative filming demonstrates lower motor neurone, upper motor neurone, posterior column, lateral spinal thalamic, and sensory level findings. Film is being illustrated, titled, and narrated to correlate neuroanatomy with the clinical findings. Movies of actual surgery, microscopic slide of tissue, myelogram, and illustrative drawings are included. Scenes of the patient five months postoperatively show recovery.

Discussion to be opened by ROBERT L. LAM, St. Louis, Mo.

SECTION ON OBSTETRICS

Officers

Chairman.....SIMON V. WARD, New Orleans, La.
Vice-Chairman.....ERNEST W. FRANKLIN, JR., Charlotte, N. C.
Secretary.....JOHN D. GORDINIER, Louisville, Ky.

Hosts from the Saint Louis Medical Society:

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LEO J. HARTNETT
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JOSEPH M. KREBS
OTTO S. KREBS
KENNETH V. LARSEN
MILTON H. MEYERHARDT
SEYMOUR MONAT
RICHARD I. C. MUCKERMAN
FRANK G. ROBERTSON
MELVIN A. ROBLEE
ALVA C. TRUEBLOOD, JR.

Presentations limited to twenty minutes, including time required for lantern slides and/or motion pictures; the Chairman and out-of-territory essayist to be allowed thirty minutes. Discussion limited to five minutes.

Monday, October 31, 2:00 p.m.

Kiel Auditorium

Obstetrical and Gynecological closed circuit television program originating from the St. Louis City Hospital.

2:00-3:00 p.m. Diagnosis of Cancer of Cervix. Diagnostic Demonstrations.

A. N. ARNESON, St. Louis, Mo., Moderator
JAMES H. FERGUSON, Miami, Fla.
HARLAN SPJUT, St. Louis, Mo.
JOHN WALL, Houston, Texas

3:00-4:00 p.m. Vaginal "Culdesac" Suspension of the Uterus. Panel Discussion and Operative Procedure.

GARTH JARVIS, Galveston, Texas, Moderator
JOSEPH HARDY, JR., St. Louis, Mo.
LEO J. HARTNETT, St. Louis, Mo.

Tuesday, November 1, 9:00 a.m.

Kiel Auditorium

Patients with Four or More Cesarean Sections.

HUGH B. MCNALLY, Baltimore, Md.

In this paper the authors expand upon a paper, written in 1955, in which they examined the obstetrical careers of 130 women, who had had four or more cesarean sections. This second series of 710 patients, selected with no attempt at screening, supplied a group of amazing similarity. The data on the second group was expanded in an effort to supply answers raised by the first paper. An attempt has been made to digest as many of the statistics as possible and to present them in simplified table form.

Discussion to be opened by SILAS H. STARR, Louisville, Ky.

Cesarean Section: A Six-Year Review.

DOUGLAS M. HAYNES and HERSHEL CLEMMONS, Louisville, Ky.

The material presented represents a statistical review of cesarean sections at the Louisville General Hospital over a six-year period. During this time the overall section rate was 2.0%. The discussion places special emphasis on indications. Also discussed are the types of cesarean section performed, type of anesthesia used, maternal mortality, fetal survival rates, and comparative statistics for survival among babies born vaginally and by cesarean section.

Discussion to be opened by SILAS H. STARR, Louisville, Ky.

Ten Years' Experience with Cesarean Sections in a Fifty Bed Community Hospital.

B. S. CHATHAM, Chickasha, Okla.

Essayist reviews all cesarean sections done in a small community hospital with the idea of comparing their indications and results with those from larger institutions in this country.

Discussion to be opened by SILAS H. STARR, Louisville, Ky.

Intermission—Visit Exhibits

Chairman's Address: Erythroblastosis from the Obstetrician's Viewpoint.

SIMON V. WARD, New Orleans, La.

GUEST SPEAKER

EDWARD C. HUGHES, M.D.

Syracuse, N. Y.

The Function of the Placenta as it Applies to the Practice of Obstetrics.

The placenta, the life-line of the fetus, not only controls the development of the size of the fetus while in utero; but also through variations in its function, creates many of the complications in obstetrics, which become problems for the obstetrician. During the early days of gestation, the chorion, which later becomes an important part of the placenta, produces an increasing amount of endocrine substances which maintains the early pregnancy and aids in the formation of the embryo. A chorion failing in function during this period of pregnancy, evidenced by histologic and pathologic changes, creates some of the complications found at this time. These alterations not only influence the development of the embryo during its formative phase, but also affects the size and viability of the fetus later. After the placenta is completely formed, this organ not only serves as one of nutrition of the fetus but also as a structure of endocrine secretion. Subtle pathological changes in the placenta followed by alterations in the endocrine output not only causes some complications of pregnancy, but also influences the growth in the development of the fetus after birth. These changes are particularly noted when pregnancy is complicated by diabetes, toxemia of pregnancy, Rh isoimmunization, and recurrent prematurity. The relationship of all these physiologic processes will be described and their importance in creating obstetrical problems will be discussed.

Wednesday, November 2, 12:00 noon

Sheraton-Jefferson Hotel, Crystal Room

Joint Luncheon with Section on Gynecology

Wives invited

EDWARD C. HUGHES, Syracuse, N. Y., and ROGER B. SCOTT, Cleveland, Ohio, Guests

Wednesday, November 2, 2:00 p.m.

Kiel Auditorium

Certain Aspects of the Bacteriology of the Pregnant Cervix.

HUGH M. HILL, Gainesville, Fla.

Discussion to be opened by J. O. H. SIMRALL, Louisville, Ky.

A New Approach to Obstetric & Gynecologic Practice.

J. ALLAN OFFEN, Miami, Fla.

Discussion to be opened by RICHARD BURMAN, Gulfport, Miss.

Business Session.

Intermission—Visit Exhibits

Some Aspects of Intrapartum Maternal—Fetal Circulation Gas Exchange.

A. STARK WOLKOFF, Chapel Hill, N. C.

Pregnant ewes at term were anesthetized with conduction methods, and with the intact placental circulation, measurements were performed on ewe and lamb at hysterotomy. Polyethelene catheters were inserted on both sides of the fetal heart and the maternal circulation as well. In addition to the usual metabolite measurements of blood gases, pH, etc., the various pressures of the right and left side of the circulation under several types of stress were recorded with Sanborn direct writing recording systems. Several of these conditions were directly applicable to the human birth process.

Discussion to be opened by ROBERT A. ROSS, Chapel Hill, N. C.

Relative Narcotic Levels in Maternal and Fetal Circulations.

EDWARD HANEKAMP, St. Louis, Mo.

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Officers

Chairman.....GEORGE M. HAIK, New Orleans, La.
**Chairman-Elect*..MERCER G. LYNCH, New Orleans, La.
Vice-Chairman..BERNARD J. MCMAHON, St. Louis, Mo.
Secretary....ALBERT C. ESPOSITO, Huntington, W. Va.

Hosts from the Saint Louis Medical Society:

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BENJAMIN MILDER
PAUL W. MILES
HUBERT B. PEUGNET
M. HAYWARD POST
ROBERT E. RYAN
ALBERT C. STUTSMAN
THEODORE E. WALSH

Presentations limited to twenty minutes, including time required for lantern slides and/or motion pictures. Discussion limited to five minutes.

Monday, October 31, 10:00 a.m.

Kiel Auditorium

"St. Louis Day"

Closed Circuit Color Television

Preventive and Curative Treatment of Retinal Detachment. Surgical Demonstration.

PAUL A. CIBIS and BERNARD BECKER, St. Louis, Mo.

After a short introduction into the basic pathology and symptomatology of retinal detachment, conventional and recently advanced procedures of retinal detachment surgery will be discussed and demonstrated by illustrations and live television. The technics demonstrated will include photocoagulation, diathermy treatment and scleral buckling procedures. Summary: The principles and technics of modern treatment of idiopathic retinal detachments are discussed and demonstrated in diagrams and live television.

Monday, October 31

12:00-2:00 p.m.—Luncheon, Sheraton-Jefferson Hotel, Public Function Room No. 3.

The following papers will be presented during the luncheon:

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*Deceased

Closure of Corneal Wounds with Catgut Sutures.

SAMUEL D. MCPHERSON, JR., Durham, N. C.

Most ophthalmic surgeons have been reluctant to use catgut sutures in the closure of corneal wounds because of an unpredictable rate of absorption and a fear of undue tissue reaction. The advantages of using sutures which do not have to be removed from corneal wounds are evident. We have used catgut sutures in the repair of clear corneal wounds and in lamellar and penetrating keratoplasties. The results and complications of the use of this material will be presented and discussed.

Gelfoam in Stapedectomy, Technic and Results.

MILES L. LEWIS, JR., New Orleans, La.

The surgical technic in the use of gelfoam in the stapedectomy operation is described and illustrated. The results obtained in 200 operations of this type are presented and analyzed.

Monday, October 31, 2:00 p.m.

Kiel Auditorium

Advances in Surgery for Deafness.

THEODORE E. WALSH, St. Louis, Mo.

Although numerous attempts were made to correct the deafness of otosclerosis in the upper turn of the century none was particularly successful until Lempert in the early 30's effected his one stage operation for fenestration. Since then, strides have been made in the surgery for deafness. Various technical improvements in fenestration brought the results up from a useful 60 per cent to somewhere in the region of 90 per cent and the hearing is maintained for at least fifteen years. Later, when Rosen using one of Lempert's technics for entering the middle ear mobilized a stapes by accident, the operation suggested by Miot was repopularized. Mobilizations of the stapes gave results in a certain number of cases but the overall results were disappointingly low. After two years no more than 20 per cent had maintained their hearing. Various other methods were tried and it was the efforts of Michel Portmann and John Shea who did various operations for removal of the stapes and for the use of prosthesis in place of the removed stapes. Since then, results of the stapes replacement have improved remarkably, although we at present know nothing about the long time results, immediate results in terms of really serviceable hearing are in the region of 90 per cent.

Acquired Strabismus in Adult.

JAMES E. MILLER, St. Louis, Mo.

Strabismus that develops in adults is usually on a pathologic basis and requires extensive evaluation. The types due to muscle dystrophy, thyroid dysfunction, myasthenia gravis, orbital fractures, trauma, and neurologic disease will be described. The results following therapy will also be illustrated.

Discussion to be opened by LAWRENCE T. POST, St. Louis, Mo.

Resumé of Osteomyelitis of the Sphenoid.

ROBERT N. TINDALL, St. Louis, Mo.

Osteomyelitis of the sphenoid and basisphenoid has long been a recognized entity. The first well published reports were by Flatau about 1895. This paper is a short review of the literature and report of a case which was mistaken for carcinoma of the nasopharynx (including a pathological report calling same a malignancy).

Discussion to be opened by BERNARD J. MCMAHON, St. Louis, Mo.

Intermission—Visit Exhibits

Glaucoma Family Study.

ALLAN E. KOLKER and ROBERT A. MOSES, St. Louis, Mo.

The close relatives of patients with open angle primary glaucoma were studied by means of ophthalmoscopy, visual field testing, tonometry and tonography with water drinking. A relatively large percentage of this group was found to have decreased facility of outflow, elevated pressure, abnormal response to water or overt glaucoma.

Discussion to be opened by ROBERT D. MATTIS, St. Louis, Mo.

Serous and Mucus Otitis Media in Children.

GUERDAN HARDY, St. Louis, Mo.

Non-suppurative or serous otitis media occurs frequently and, in children especially, it is often overlooked. One of the more serious consequences of this condition is impairment of hearing and all too frequently this deafness is attributed to inattention. If only one ear is involved, the parents may be unaware of any hearing loss. However, if both ears are involved, deafness is more obvious and medical attention is usually sought. Recurring deafness with colds and repeated otalgia with respiratory infections should alert one to possible middle ear pathology. Hypertrophied adenoids or lymphoid tissue around the eustachian orifices seem to be the chief causes for this condition. Allergy may be a factor in a small percentage but it is the author's impression that allergy is a concomitant condition rather than a causative one. Although fluid or thick mucus may be present in the middle ear, there may be no gross hearing loss in the early stages, and changes in the appearance of the eardrum may be minimal. A careful study of the eardrums with particular attention to the motility, hearing tests, air and bone conduction tests with tuning forks, and the effect of gentle inflation are diagnostic aids. A brief review of present therapy will be included.

Discussion to be opened by BEN H. SENTURIA, St. Louis, Mo.

Tuesday, November 1, 9:00 a.m.

Kiel Auditorium

Chairman's Address: Subluxated and Dislocated Lenses.

GEORGE M. HAIK, New Orleans, La.

This paper will deal with the discussion of congenital and traumatic subluxation and dislocation of the lens. Marchesani's syndrome and Marfan's syndrome will be discussed.

A Clinical Study of Alternating Hypertropia.

A. D. RUEDEMANN, JR., Detroit, Mich.

A series of over 90 cases of alternating hypertropia (A and V Syndrome) have been evaluated in terms of diagnosis, treatment and functional result. Some of the errors made, pitfalls in diagnosis, and clinical aids to diagnosis, will be discussed. The particular relationship of the vertical muscle imbalance to the horizontal defect will be emphasized.

Iatrogenic Eye Diseases.

WILLIAM W. VOLLOTTON, Charleston, S. C.

With the recent advent of multiple and complicated diagnostic procedures numerous ocular complications have occurred. These complications occur sometimes as the result of carelessness on the part of the attending physician, sometimes on the basis of individual patient idiosyncrasy to the drug used in the diagnostic procedure and sometimes due to mechanical or anatomical abnormalities present within the patient. A discussion of the complications following arteriograms, pneumoencephalograms, lumbar puntcures, and various dye tests for organ functions are discussed. With the use of more powerful medications in somewhat larger doses than have been used in the past other difficulties have developed regarding the eyes and must also be considered iatrogenic. A discussion of these defects will also be given. Anesthetic difficulties as well as some operative procedures are in the general neighborhood of the eye which may cause disastrous ocular complications will also be discussed in this paper. Slides and case reports of individuals affected will be shown.

Discussion to be opened by JOHN GILL, Texarkana, Texas.

Effect of Whiplash Injuries on Ocular Functions. (10 min.)

HARRY HORWICH and DAVID KOSNER, Coral Gables, Fla.

In the introduction, the importance of whiplash injuries as an increasingly common entity, and its medico-legal implications are discussed. In defining the term, it is pointed out that this is not a syndrome, but a mechanism of head and neck injury, with variable derangement of anatomic structures and function. The types of eye-findings and their relative importance are discussed. The most important derangement is that of accommodation, and next most important is that of convergence. The probable mechanism for these derangements is described and illustrated. Prognosis and methods of treatment, both general and local, are outlined.

Intermission—Visit Exhibits

Alpha-Chymotrypsin in Cataract Surgery: Contraindications and Complications.

ALSTON CALLAHAN, Birmingham, Ala.

As more eyes have been followed for longer periods after cataract extraction with the aid of a-chymotrypsin it has become apparent that the cornea receives a chemical insult from this substance. If the cornea is normal, the threat to complications is overcome, but in early corneal dystrophy, the

progress of the disease may be accelerated. In patients whose fellow eyes have been involved with retinal detachments, we do not use this substance when the cataract is removed from the other eye for fear that a detachment may be caused. However, our personal statistics of retinal detachment following cataract surgery has shown no significant increase over those that occurred when no enzyme was used. Other contraindications and complications by its use will be discussed.

Light Coagulation in Treatment of Retinal Disease.

JOHN F. NOWELL and GEORGE S. ELLIS, New Orleans, La.

Recent investigations of the use of high intensity visible light rays directed through an ophthalmoscope to "spot-weld" the retina and choroid together in retinal detachment have exhibited the value of this technic in treating some types of intraocular tumors and inflammatory processes. Experience with rabbits and human cases during tht past fifteen months has confirmed some general rules concerning indications and contraindications for light coagulation.

Therapy of Cephalosporium Keratomycosis.

WENDELL D. GINGRICH, Galveston, Texas

Fusarium oxysporum was isolated and the culture identified in two cases of corneal ulcer and another species of this same genus (now being studied for final identification) was isolated from a third case. All three cases were initiated by a foreign particle on the cornea and the use of topical steroid (with antibiotic) therapy. Culture studies showed growth to be inhibited by thimersal (merthiolate) in concentration of 0.01 μ/ml., retarded or inhibited by sodium sulfacetimide 50 mg./ml., and completely insensitive to amphotericin B (fungizone) and other antibiotics in concentrations up to 1 mg./ml. Infection was eradicated in all cases by sodium sulfacetimide iontophoresis followed by intensive topical thimersal therapy. One case progressed to perforation with the patient retaining the eye. Two cases recovered with some useful vision with the eye as a functioning unit and incomplete corneal opacity.

Congenital Cataracts. (10 min.)

CLAY W. EVATT, MILTON ATLER and ELSIE TABER, Charleston, S. C.

This study extends over a period of 17 years, embracing four generations in which 15 persons (10 males, 5 females) were born with bilateral cataracts. Consanguinity seems to be an important factor. All except one have been operated upon and have useful vision. The unoperated one has 20/25 vision despite small central cataract OU. Ages of operated persons range from four years to 48 years. Only one has nystagmus. The same patient has muscle imbalance. Otherwise all were normal.

Discussion to be opened by JACK W. JERVEY, JR., Greenville, S. C.

Useful Variations in Technics for Surgery of Blepharoptosis.

ROBERT A. SCHIMEK, New Orleans, La.

Of the various technics for correction of blepharoptosis, each technic has variations which are important if one is to obtain the best possible result with different types and severity of ptosis. First, variations in the Iliff technic will be discussed. Particular reference will be made to acquired ptosis, congenital ptosis with fair levator action, and to congenital ptosis with poor levator action with respect to variations in the operative technic indicated by each condition. In surgery of traumatic ptosis, the external approach has been recommended by many; however, the conjunctival approach can be used to advantage if certain variations in technic are employed. Variations in technic of the levator-frontalis sling operation will be mentioned. These various modifications often make the difference between a good result and a mediocre or poor result in ptosis surgery.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

Contact Lens Symposium.

Indications, office and fitting technic, psychology, economy, ethics, and the role of ophthalmology in the contact lens field.

Moderator: THOMAS J. VANZANT, Houston, Texas

Panel Members:

DONALD FONDA, Ridgewood, N. J.
JACK LEE, San Antonio, Texas

Wednesday, November 2, 9:00 a.m.

Kiel Auditorium

Destructive Lesions of the Superior Maxilla Resembling Malignancy.

WILLIAM M. TRIBLE, Washington, D. C.

The author has been impressed by the frequency with which patients presenting with clinical and roentgenological evidence of maxillary malignancy (massive bone destruction), have proved to have benign lesions. Benign tissues have been disbelieved requiring a repetition of open biopsy procedures. Cases of gumma, late radionecrosis, and repeated bone cyst formation are presented, with four cases of spontaneous destruction of the antral walls by bacterial infection. Lethal granuloma of the midline and its relation to Wegener's granulamatosis is described. The pathophysiology of bone destruction by infection and by tumor is discussed. It is suggested that the relief of attacks of acute sinusitis with antibiotics, without drainage or irigations, has allowed a destructive process to develop in some patients resembling malignancy.

Bleeding Following Tonsil and Adenoid Operations.

DONALD F. PROCTOR, Baltimore, Md.

In 1958 I reported the incidence of bleeding following tonsil and adenoid operations performed between 1941 and 1957. The present paper brings these figures up to date and describes minor alterations in technic. It is my feeling that the most important factors in minimizing the incidence of bleeding following tonsil and adenoid operations are careful direct vision dissection and meticulous surgical hemostasis at the conclusion of the operation.

Intermission—Visit Exhibits

The Round Window—A Critical Re-Evaluation.

LYLE M. SELLERS, Dallas, Texas

Since the classical and original description of the round window by Scarpa in 1772 this structure has been a victim of otological oversight. Bemused by the all too slick arrangement of the ossicular chain as a mechanism of the input of sound and by Helmholtz's recognition of the laws of sound and their relation to an apparent harp-like action of the basilar membrane and the structures resting upon it our attention has been directed away from the round window. The writer feels that the round window has a much greater role in the entrance of sound to the scala media and thence to the perceptive sensorium than has been accorded to it. This role is discussed from the viewpoint of its anatomy and its physiology, the influence of these on the action of the organ of Corti and the clinical and surgical problems which arise as its consequence.

Results of Masto-Tympanic Surgery: A Critical Evaluation.

BEN H. SENTURIA, ROBERT GOLDSTEIN and BENJAMIN ROSENBLUT, St. Louis, Mo.

Much interest in tympano-mastoid surgery has been engendered by the recent important contributions of Wullstein and Zollner. However, time and experience have tempered the original enthusiasm and a critical analysis of postoperative findings makes it necessary to re-examine some of the basic teachings and practices. This study is based on 56 consecutive operations in which conservation and repairing surgery was attempted. Hearing tests, bacteriological studies and surgical records were given special attention. Incidence of metaplasia of skin and cholesteatoma formation makes it undesirable to use full thickness skin grafting over wet, infected middle ears. If a culture of gram negative bacilli is obtained in preoperatory bacteriological studies, skin grafting appears contraindicated at the time of the initial surgery. Analysis and evaluation of functional results are presented for the different tympanoplastic technics. Excellent maintenance of hearing is achieved with this approach but striking improvement in hearing occurs in only a small percentage of these unselected cases.

Stapedectomy with Vein Graft for Deafness Due to Otosclerosis.

HARRY ZOLLER, New Orleans, La.

This paper will include an introduction to stapes surgery, technic of the operation and results.

Round Table Discussion

LYLE M. SELLERS, Dallas, Texas
BEN H. SENTURIA, St. Louis, Mo.
HARRY ZOLLER, New Orleans, La.
MILES L. LEWIS, JR., New Orleans, La.

Business Session.

SECTION ON ORTHOPEDIC AND TRAUMATIC SURGERY

Officers

Chairman.....DANIEL C. RIORDAN, New Orleans, La.
Vice-Chairman....ELIAS MARGO, Oklahoma City, Okla.
Secretary..H. ROBERT BRASHEAR, JR., Chapel Hill, N. C.

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DONALD O. BURST
MARSHALL B. CONRAD
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EDWARD C. HOLSCHER
RICHARD E. LORD
HENRY R. MCCARROLL
ROBERT M. O'BRIEN
FRED C. REYNOLDS
MAURICE B. ROCHE
GEORGE E. SCHEER
GARLAND F. SMITH

Presentations limited to fifteen minutes, including time required for lantern slides and/or motion pictures; the Chairman and out-of-territory essayist to be allowed thirty minutes. Discussion limited to five minutes.

Monday, October 31

6:00-8:00 p.m.—Social Hour, sponsored by the St. Louis Orthopedic Society, Junior League Tearoom in the Frontenac Apartments, 40 North Kingshighway, St. Louis. There will be a charge of $2.50 per person.

Tuesday, November 1, 9:00 a.m.

Kiel Auditorium

Injuries of the Elbow in Children.

WORTH M. GROSS, Tulsa, Okla.

Injuries of the elbow in children are distinct and separate entities from similar injuries of the elbow in adults. The extremes of treatment in these various injuries are discussed and compared with the preferred methods in the hands of the author. Specific injuries are enumerated, and chronological slides are offered concommittantly throughout the discussion. Controversial methods of treatment are discussed, and end results are accurately demonstrated. A specific method of plaster immobilization for supracondylar fractures is demonstrated and discussed. Slides are used primarily to indicate errors in judgment and treatment with the resultant residual deformities.

Discussion to be opened by EARL P. HOLT, St. Louis, Mo.

The Surgical Care of Severe Ankle Sprains.

HOWELL H. SHERROD and JAMES D. PHILLIPS, Johnson City, Tenn.

The authors will discuss the diagnosis and treatment of ankle sprains in detail. Observations and experience in the diagnosis of these lesions will be given. The history of an inversion ankle injury, associated with a loud pop, followed by swelling, tenderness and discoloration is noted. After local injection of anesthetic and hyaluronidase, testing for stability of the ankle is performed. This is a clinical and radiographic examination with stress applied. In those ankles which demonstrate a complete tear of the component parts of the fibular collateral ligament, the authors advocate surgical repair and cast fixation for a total of six weeks. The extent of the pathology has been amazing. All of these ankles have been quickly rehabilitated almost as soon as the cast is removed. This is in marked contrast to those severe sprains of the ankle which have been treated less vigorously.

Discussion to be opened by WALTER P. GRAUL, St. Louis, Mo.

The Treatment of Slipped Capital Femoral Epiphyses.

W. KELLY WEST and JACK D. SPENCER, Oklahoma City, Okla.

This paper will consist of a critical review of a series of operative procedures performed on children with slipped upper femoral epiphyses. All patients were treated at the University of Oklahoma Medical Center. The operative technics will be presented, as well as reasons for successes or failures. Preoperative and postoperative x-rays will be shown and postoperative care will be briefly described. Parts of the paper will be illustrated by slides.

Intermission—Visit Exhibits

Chairman's Address: (To be announced)

DANIEL C. RIORDAN, New Orleans, La.

Articular Fractures—Fixation with Straight Wires.

EDWARD C. HOLSCHER, St. Louis, Mo.

Accurate reduction and fixation of fractures at the articulations are imperative, though often difficult to achieve. Open surgery is usually indicated and has long been so held. Careful preoperative planning is essential in working out solutions to problems which can tax to the limit the surgeon's mechanical ingenuity. This presentation is essentially concerned with corrective surgery employing Kirschner wires to skew the fragments and cast immobilization. In most instances the wires were left extruding through slits in the skin and later removed. Certain technical refinements were practiced. Observations made from this experience may allay fear of those who feel that infection can follow compounding of the wound by a pin protruding through the skin. Cases will be presented with illustrations to point out the extent of some of the problems, technical consideration in the choice and use of the straight wires, pitfalls and errors in technic, together with some end results.

Discussion to be opened by CHALMERS R. CARR, Charlotte, N. C.

Treatment of Extracapsular Fractures of the Femur Based on Bio-Mechanical Principles Using a Sliding Nail Technic.

W. K. MASSIE, Lexington, Ky.

This presentation consists of a comparison of the cases treated by the advocated technic with that using the standard rigid nail plate fixation. The technic advocated in essence is the insertion of a telescoping nail along the medial trabeculation, resting on the calcar femorale. All fractures, both stable and unstable, are firmly impacted at the time of surgery with the proximal fragment in a valgus position neutralizing the tendency for shortening. Partial weight-bearing is permitted promptly postoperative and actually enhances the rapidity of bony union.

Discussion to be opened by ROBERT E. FUNSCH, St. Louis, Mo.

Tuesday, November 1, 2:00 p.m.

Clinical Session, Wohl Auditorium, Wohl Hospital

Wednesday, November 2, 9:00 a.m.

Kiel Auditorium

Radial Head Dislocation with Associated Fracture of the Ulna (Monteggia Fracture).

VIRGIL R. MAY, JR., and WILLIAM MAUCK, Richmond, Va.

This paper discusses the mode of injury and the forces which cause this entity. The injury is not uncommon and makes the physician cognizant of the importance of accurate, early diagnosis. The early recognition of the fracture dislocation is emphasized in order to give the best results. Not only physical examination by the physician is stressed, but also accurate, good x-rays, including the elbow and the wrist, are emphasized as there may be other bony injuries of the forearm associated with this fracture dislocation. In addition to the diagnosis, the pathology of the fracture and the annular ligament is discussed as well as whether conservative closed reduction or open reduction is warranted. This fracture dislocation has been treated in children as well as in adults, and the treatment of both is shown. The cases seen at the Medical College of Virginia over the past ten years are presented. A new operative technic is presented in this paper through which the head of the radius is better maintained at its articulation

with the capitellum of the humerus. The paper is illustrated with slides, showing preoperative cases, postoperative cases and complications.

Discussion to be opened by OSCAR P. HAMPTON, JR., St. Louis, Mo.

The Billington Plaster Yoke for Fractures of the Clavicle.

J. W. HILLMAN, E. M. REGEN and E. M. REGEN, JR., Nashville, Tenn.

The treatment of a fracture of the clavicle, particularly in the adult, requires careful attention to technic of treatment, which should always be of the closed type. The method of treatment should cause a minimum of inconvenience and discomfort and should restore the normal structural relationships of the shoulder girdle. This paper is a review and reappraisal of a method of treatment originally presented to the Orthopedic Section of the Southern Medical Association in 1929 by Dr. R. Wallace Billington. The Billington plaster yoke has been used consistently at the Vanderbilt Medical School since that time and has proved superior to other methods. A motion picture demonstration of the application of the plaster will be shown.

Discussion to be opened by J. OTTO LOTTES, St. Louis, Mo.

GUEST SPEAKER

JOHN H. MOE, M.D.

Minneapolis, Minn.

Chief of Staff, Gillette State Hospital for Crippled Children, St. Paul, Minn.; Clinical Professor and Director, Division of Orthopedic Surgery, University of Minnesota.

The Conservative Treatment of Scoliosis.

The conservative treatment of scoliosis was the only method known prior to the introduction of the Hibbs spine fusion operation in the first part of the present century. The almost universal failure of conservative methods to halt a progressive lateral curvature created a feeling of helplessness and hopelessness among orthopedic surgeons which has still not been entirely eradicated. Many patients with idiopathic scoliosis do not progress to a point of sufficient cosmetic deformity to warrant much active treatment. However, the "wait and see" attitude can easily be carried too far. It is the purpose of this presentation to point out means by which some reasonably accurate forecasting of progress of curves can be obtained. An evaluation of methods of correcting and holding curves in correction will be given. The indications for abandoning conservative treatment and the indications for continuation of external support following fusions for scoliosis in young children will be discussed.

Intermission—Visit Exhibits

Management of Late Results in Athletic Injuries to the Knee.

DON H. O'DONOGHUE, Oklahoma City, Okla.

The author calls attention to the fact that while the majority of knee injuries occur in young people, one often is called upon to examine and treat the sequela of injuries which occurred many years before. While one may deplore the chronic residual of this condition which should have been treated much sooner, this does not solve the problem to the patient who has late degenerative changes from untreated joint pathology. To this particular patient, treatment may seem as important or even more important than it does to the young athlete. Basically, there are two lines of treatment. First, elimination of the activity which caused the trouble, and second, elimination of the trouble. In some instances it may be possible to reduce the activity of the patient and so reach a tolerable plateau which permits the patient an adequate degree of activity. In the past this has usually been the major line of attack, an attack which is extremely unsatisfactory to the individual involved. The orthopedist is not justified in telling a patient to stop a certain activity which is important to him if he has a reasonable chance, by definitive treatment, to restore this ability. The author discusses the non-surgical treatment of old conditions of the knee with its indications and limitations. He also discusses treatment of degenerative changes in the patella with indications for various procedures. He points out the fallacy of subjecting the patient to a lifetime of inactivity simply because one cannot expect a normal knee following operative treatment.

Discussion to be opened by KILIAN F. FRITSCH, East St. Louis, Ill.

Direct Repair of Ligaments about the Knee.

HERBERT W. VIRGIN, JR., Miami, Fla.

This paper attempts to show that a very satisfactory surgical procedure is the direct or immediate end to end repair of ligaments about the knee, including the anterior cruciate and the collateral ligaments. Color slides will demonstrate the method of exposure which enables the surgeon not only to visualize, but surgically to approach the ruptured ligaments and to repair them anatomically. These slides are in color and taken during several operative procedures. They also reveal the postoperative condition of the knee joints relative to extension and flexion. A description of the slides is given as they are projected, and a discussion of the ability of the patient postoperatively to utilize the injured knee is included.

Discussion to be opened by ROBERT M. O'BRIEN, St. Louis, Mo.

Legg-Calve-Perthes Disease, The Roentgenological Changes with Therapy in Forty Patients.

E. W. PHILLIPS, Lake Charles, La.; BENNETT YOUNG, Shreveport, La.; JACK WICKSTROM, New Orleans, La.

All films available on forty patients with Perthes disease at Shrine Hospital in Shreveport have been reviewed, and the results of therapy have been graded according to the indices established by Hyman and Herndon. Follow-up films were studied up to the age of fifteen on all children included in this project. These children were treated by bed rest, bed rest with traction, sling and crutches, operative curettage of the head and epiphysis, an ischial weight-bearing brace, or combination of the above forms of treatment. A correlation of the x-ray appearance of the heads of these femurs with the period of time in which they remained non-weight bearing, together with the form of treatment instituted, have been considered. Clinically, all forms of therapy appeared to give satisfactory results. Roentgenologically, there appeared to be some significant difference. The results of ten cases, surgically treated, are compared with those treated conservatively.

Discussion to be opened by H. R. MCCARROLL, St. Louis, Mo.

Wednesday, November 2, 2:00 p.m.

Clinical Session, Miller Hall, Desloge Hospital

Thursday, November 3, 9:00 a.m.

Kiel Auditorium

Tibia Vara: Eighteen Cases with Follow-up Study.

ALLEN S. EDMONSON, Memphis, Tenn.

A study of eighteen cases of tiba vara, osteochondrosis, deformans tibiae, or Blount's disease, is presented. The cases were obtained from the colored and white Crippled Children's Service Clinics meeting in Memphis, Tennessee, which include patients from sections of both Mississippi and Tennessee. In addition, there are a few private cases from the Campbell Clinic. The patients were treated by several different orthopedic surgeons and include some operated early and late, and some treated conservatively. Many patients are followed to skeletal maturity. The usual course of the disease is discussed along with a discussion of the treatment in these patients. The few biopsies made at operation in the cases in this series do not contribute materially to the unsolved question of etiology. Cases of both infantile and adolescent types are included with illustrative x-rays and photographs.

Discussion to be opened by GEORGE E. SCHEER, St. Louis, Mo.

The Use of Staples in Leg Length Discrepancies.

MARVIN M. GIBSON, Washington, D. C.

The results of epiphyseal stapling about the knee for leg length discrepancies for poliomyelitis at Children's Hospital have been reviewed. The review covers both staff patients and office private patients. The results were found to be unpredictable, with difficulties such as failure to arrest growth completely, lateral deformities, extrusion of staples, and breaking of staples. The reliable procedure of epiphysiodesis is advocated.

Discussion to be opened by WARREN STAMP, St. Louis, Mo.

Achondroplasia: The Problem of Club Feet in Achondroplastics.

J. H. KITE, Atlanta, Ga.

In a series of nearly twenty-four achondroplastic dwarfs, club feet have been encountered in more than one-fourth. These feet have been extremely resistant to cast treatment. They presented a more difficult problem than even those club feet seen in arthrogryposes. The cases, along with methods of treatment, will be discussed.

Discussion to be opened by WILLIAM STEWART, Columbia, Mo.

Intermission—Visit Exhibits

Denervation as a Means of Treating Chronic Hip Pain.

WILLIAM B. JONES and LENOX D. BAKER, Durham, N. C.

Chronic hip disease in the elderly patient or in the young or middle-aged patient, when presenting bilaterally, is a perplexing problem. Pain is the major disabling factor in these patients with weakness and limitation of motion of only secondary importance. The historical development of an operation to denervate the hip is recounted. The anatomical arrangement and variation of nerves contributing to the hip joint is outlined, and the result of forty gross dissections of the accessory obturator nerve is presented. All procedures performed for denervation of the hip at the Duke University Medical Center during the last ten years were reviewed and analyzed. This paper is not necessarily to point out clinical results achieved by this procedure, but to emphasize (1) a definite suitability for debilitated patients and those in whom maintenance of some motion is mandatory; and (2) certain minute anatomical details that may behold the operating surgeon and may curtail the success of the procedure unless thoroughly understood.

Discussion to be opened by W. EDWARD LANSCHE, Clayton, Mo.

The Treatment of a Septic Joint.

ARTURO ORTIZ and WALLACE E. MILLER, Miami, Fla.

Very few recent articles have been written to document treatment of septic joints. In view of the constant changing pattern of available antibiotics, a current evaluation of this subject has been attempted. Basic concepts of treatment of infections within a joint space have been presented in texts. *The Journal of Bone and Joint Surgery* is an area of reference for the internist and pediatrician; yet, few articles in recent years are in evidence. It would be acknowledged leadership in our field to reaffirm old principles that still apply and indicate standard preference in antibiotic therapy. A tendency to rely on the systemic level of antibiotics has resulted in inadequate treatment for the involved joint. The influx of newer antibiotics and the trend away from penicillin, because of a "resistant" staphlococcus, have created more problem cases, rather than lessening them. A series of cases in the hospitals that make up the orthopedic training center at the University of Miami are reviewed, and aspects of treatment are discussed.

Discussion to be opened by LEE T. FORD, St. Louis, Mo.

The Opponens Transfer: Analysis of End Results.

FRANK W. CLIPPINGER, Durham, N. C.; C. E. IRWIN, Warm Springs, Ga.

This is a survey of approximately 125 opponens transfers, all of which have at least six months follow-up. The end results are analyzed from a mechanical standpoint only. Comparison is made between those that utilize the sublimus motor and those requiring a free tendon graft. The complications inherent in the procedure are discussed.

Discussion to be opened by ARTHUR H. STEIN, JR., St. Louis, Mo.

Business Session.

SECTION ON PATHOLOGY

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L. S. N. WALSH

Presentations limited to twenty minutes, including time required for lantern slides and/or motion pictures; the Chairman and out-of-territory essayist to be allowed thirty minutes. Discussion limited to five minutes.

Monday, October 31, 2:00 p.m.

Kiel Auditorium

A joint meeting of the Sections on Medicine and Pathology.

A Symposium on the Adrenal Cortex.

Systemic Disease and Adrenal Cortical Response.

FLOYD R. SKELTON, New Orleans, La.

Morphologic and functional responses of the adrenal cortex to disease states having a prominent stress component will be characterized and discussed. Similar consideration will be given to zona glomerulosal and aldosterone secretory changes in disease. Adrenal cortical response in certain diseases related to hyperplasia and hypertrophy will be reviewed.

Discussion to be opened by FRED V. LUCAS, Columbia, Mo.

Clinical Aspects of Adrenal Cortical Hyperfunction.

S. RICHARDSON HILL, Birmingham, Ala.

The clinically manifest symptoms and signs of hypercortisolemia of the primary and secondary varieties will be discussed. Primary aldosteronism and pseudohyperaldosteronism will also be discussed along with the niceties of differentiation of these two syndromes. Iatrogenic adrenal cortical hyperfunction and the complications attendant thereon will also be characterized and illustrated.

Clinical Aspects of Adrenal Cortical Hypofunction.

WILLIAM H. DAUGHADAY, St. Louis, Mo.

The classic syndrome of adrenal cortical hypofunction as exemplified by Addison's disease will be discussed in relationship to the pathophysiology of the symptoms and signs of this disorder. Similarly will be discussed adrenal apoplexy and the less commonly recognized syndromes of adrenal cortical hypofunction and failure.

Tumors of Adrenal Cortex.

ROBERT M. DIMMETTE, Bethesda, Md.

There are numerous tumors, both benign and malignant, of the adrenal cortex which will be briefly presented in an outline form. The tumors that need further differentiation from the standpoint of malignancy will be discussed and illustrated. The differentiation between nodular hyperplasia, adenoma of the cortex and carcinoma is a problem to the surgical pathologist. The correlation of these three tumerous lesions will be made to the known and recognized clinical syndromes.

Intermission—Visit Exhibits

***Panel Discussion:* Disorders of the Adrenal Cortex.**

Moderator: PETER H. FORSHAM, San Francisco, Calif.

Panel Members:

S. RICHARDSON HILL, Birmingham, Ala.
WILLIAM H. DAUGHADAY, St. Louis, Mo.
FLOYD R. SKELTON, New Orleans, La.
ROBERT M. DIMMETTE, Bethesda, Md.
FRED V. LUCAS, Columbia, Mo.

Tuesday, November 1, 9:00 a.m.

Kiel Auditorium

Silicone Embolization in Extracorporeal Oxygenation-Perfusion Systems.

DONALD A. B. LINDBERG, Columbia, Mo.

The microscopic lesions created by embolization of silicone antifoam are described in ten patients who died following open-heart surgery and extracorporeal oxygenation. Identical lesions were produced in experimental dogs by intravascular administration of the silicone preparations or by oxygenation-perfusion of dogs on the bubble oxygenator.

The Prevention of Hemolytic Transfusion Reactions.

EARL WERT, Mobile, Ala.

The prevention of hemolytic transfusion reactions may be achieved by available technical and administrative methods. Developments in the technics for blood typing, grouping, and cross matching now make hemolytic transfusions preventable, although it is impossible to prevent sensitization. Administrative practices have been developed which will minimize the chance for such errors. The principles involved in both technical and administrative operation of a community hospital blood bank are reviewed, in which no hemolytic transfusion reaction occurred in a six year period of 22,000 consecutive blood transfusions.

Photo Not Available

GUEST SPEAKER

HENRY DIAMOND, M.D.

New York, N. Y.

Clinicopathological Correlations and Treatment in Malignant Lymphomas.

Purity of Hodgkin's disease as an entity; transformations and transmutations of various forms of lymphosarcoma including reticulum cell sarcoma. Unusual clinicopathologic features in liver and kidney involvement and other organ systems will be mentioned. Treatment of such manifestations will be mentioned.

Correlation Between Laboratory Tests and Post-mortem Findings in Pyelonephritis.

MYRTON F. BEELER and G. M. CARRERA, New Orleans, La.

In a preliminary retrospective study, a number of kidney sections from consecutive adult autopsies have been examined and graded one to four plus on the basis of severity and extent of histologic evidence of pyelonephritis. Various clinical and laboratory data have been obtained from the patients' charts, and an attempt has been made to correlate these with the degree of histologic disease. In this way it is hoped to shed some further light on the incidence and significance of pyelonephritis in autopsy material.

Intermission—Visit Exhibits

The T-3 Red Cell Uptake Procedure as a Safe, Accurate Thyroid Function Test for Use in a Community Hospital.

WILLIAM F. ENOS, WILLIAM D. DOLAN, JR., and JAMES T. WILLIAMS, Arlington, Va.

More than 200 T-3 red cell uptake (I^{131} L-Triiodothyronine) procedures were performed in our laboratory on blood drawn from both in-patients and out-patients. The results of this in vitro thyroid function test correlated most favorably with the patient's clinical picture in approximately 90 per cent of the cases. Its diagnostic accuracy, which has been reported in other presentations, was reduplicated in this series, especially in those cases which had had previous exogenous iodine for diagnostic or therapeutic procedures. The principal and technic will be discussed emphasizing the advantages of this procedure, in some instances, over some of the more standard thyroid function tests. This report clearly demonstrates that the T-3 red cell uptake is a reliable, safe, and relatively simple test which can be utilized in any small community hospital which is now using isotopes. References will be made to the results obtained in our laboratory in the use of T-3 as an aid in diagnosing early pregnancy.

Chairman's Address: Pathological Correlation of Surgical Specimens in Carcinoma of Cervix Uteri.

JOHN T. GODWIN, Atlanta, Ga.

The purpose of this paper is to present the pathological findings in a correlation study of cervical biopsy, conization and hysterectomy specimens. These tissues were obtained in patients originally suspected of having in situ carcinoma of the cervix. The results of cervico-vaginal cytological studies will be discussed as related to this study.

Discussion to be opened by JACK C. NORRIS, Atlanta, Ga.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

Business Session.

Soft Tissue Tumors.

RICHARD SHUMAN, Norfolk, Va.

A series of cases will be illustrated of rhabdomysarcoma and fibrosarcoma. Discussion will center around some of the more recent ideas relating to their origin.

Laboratory Diagnosis of Hemorrhagic Disorders.

ROBERT D. LANGDELL, Chapel Hill, N. C.

Many procedures are available for the study of the various factors concerned with blood coagulation and hemostasis. These are of value to the research worker but are not essential for clinical diagnosis. By the intelligent use of a few relatively simple laboratory procedures, most bleeding disorders can be adequately diagnosed and treated.

Clinical Pathologic Correlation of Therapy in Thrombocytopenic Purpura.

OSCAR B. HUNTER, JR., Washington, D. C.

Experience in the follow-up of cases with thrombocytopenic purpura during the past ten years since the inception of the use of cortisone and its derivatives, has led to a considerable change in the treatment of thrombocytopenic purpura. In the cases studied we have found that the great majority are susceptible to therapy with the corticoid drugs. With continuous therapy on these drugs for a prolonged period of time, usually more than one month, there will be a maintenance of the platelet count. As the patient is taken off the drug in a gradual fashion, the platelet count will not be reduced. In 25 per cent of the cases we have found that the remission has been short-lived and a reduction in the platelets has again resulted. These cases have required splenectomy for a satisfactory cure. The variation in these types of cases introduces a question as to the nature of the antibody involved in this platelet disease and to some extent simulates the agglutinating and conglutinating antibodies of red cell factors. This particular phase of the problem needs additional investigation.

Intermission—Visit Exhibits

The Organization and Use of a Coagulation Laboratory in Conditions of Maximum Average and Minimal Work Flow.

WILSON G. BROWN, Houston, Texas

The organization of a laboratory for studies of blood coagulation can be adapted to the work flow of both large and small laboratories. These plans must be economically sound, and yet offer optimum selections of laboratory procedures.

***Panel Discussion:* The Management of Patients with Bleeding Disorders.**

Moderator: OSCAR B. HUNTER, JR., Washington, D. C.

Panel Members:

ROBERT D. LANGDELL, Chapel Hill, N. C.
EARL WERT, Mobile, Ala.
ROBERT M. DIMMETTE, Bethesda, Md.

Tuesday, November 1

5:30 p.m.—Social Hour and Reception. Location to be announced.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

A joint meeting of the Sections on Gastroenterology, Pathology, Radiology and Surgery.

***Panel Discussion:* A Symposium on Peptic Ulcer.**

Moderator: GUY HORSLEY, Richmond, Va.

Part I—Gastric Ulcer

Pathology—SIDNEY SALTZSTEIN, St. Louis, Mo.

Radiology—WENDELL SCOTT, St. Louis, Mo.

Gastroenterology—WADE VOLWILER, Seattle, Wash.

Surgery—JAMES E. THOMPSON, New York, N. Y.

Intermission—Visit Exhibits

Part II—Duodenal Ulcer

Pathology—SIDNEY SALTZSTEIN, St. Louis, Mo.

Radiology—JOHN D. REEVES, Gainesville, Fla.

Gastroenterology—CHARLES M. CARAVATI, Richmond, Va.

Surgery—JAMES E. THOMPSON, New York, N. Y.

Wednesday, November 2, 9:00 a.m.

Kiel Auditorium

A joint meeting of the sections on Medicine, Pathology and Urology.

***Panel Discussion:* A Symposium on Chronic Pyelonephritis.**

Moderator: GEORGE E. SCHREINER, Washington, D. C.

Panel Members:

Long-Term Control of Infection.

CHEVES M. SMYTHE, Charleston, S. C.

Obstruction, Instrumentation and Calculi and Their Effects on the Urinary Tract.

FRED K. GARVEY, Winston-Salem, N. C.

Pyelonephritis Lenta and Its Relationship to Malignant Hypertension.

OTTO SAPHIR, Chicago, Ill.

Prevention and Care of Chronic Pyelonephritis in Children.

KURT LANGE, New York, N. Y.

Connective Tissue Response and the Local Immune Reaction in the Kidney as Related to Pyelonephritis.

CUTTING B. FAVOUR, Washington, D. C.

SECTION ON PEDIATRICS

Officers

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THEODORE S. ZAHORSKY

Presentations limited to twenty minutes, including time required for lantern slides and/or motion pictures; the Chairman and out-of-territory essayist to be allowed thirty minutes. Discussion limited to five minutes.

Monday, October 31, 2:00 p.m.

Kiel Auditorium

A joint meeting of the Sections on Anesthesiology and Pediatrics.

Symposium on the Pediatric Surgical Patient.

Introductory Remarks.

THEODORE C. PANOS, Little Rock, Ark.

Principles of Pre- and Postoperative Care in Children.

M. REMSEN BEHRER, St. Louis, Mo.

Regulation of Body Temperature in Pediatric Surgical Patients.

SARA J. DENT, Durham, N. C.

The Role of Antibiotics in the Care of the Pediatric Surgical Patient.

HARVEY R. BERNARD, St. Louis, Mo.

Intermission—Visit Exhibits

***Panel Discussion:* Pediatric Cardiac Surgery.**

From the Pediatrician's Viewpoint:
HARRY F. STOECKLE, Columbia, Mo.

From the Anesthetist's Viewpoint:
JOHN SCHWEISS, St. Louis, Mo.

From the Surgeon's Viewpoint:
VALLEE L. WILLIAM, St. Louis, Mo.

Concluding Remarks.

ROBERT B. DODD, St. Louis, Mo.

Tuesday, November 1, 9:00 a.m.

Kiel Auditorium

Neonatal Septicemia of Obscure Origin.

ROBERT S. MOORMAN, Birmingham, Ala.; SARAH H. SELL, Nashville, Tenn.

Seventy-four cases of neonatal septicemia are reported. Clinical manifestations, laboratory findings and etiologic microorganisms are presented and compared to those previously reported in the literature. Staphylococcal organisms were predominant. Fever, gastrointestinal symptoms and lethargy were the most common clinical manifestations. Suspected septicemia should be treated immediately with broad-spectrum antibiotics.

Pulmonary Hyaline Membrane Disease.

WILLIAM LAUPUS, Augusta, Ga.

Heart Failure in Infancy.

W. T. DUNGAN, Little Rock, Ark.

Intermission—Visit Exhibits

Chairman's Address: The Problem of Hyperbilirubinemia.

VICTOR C. VAUGHAN, III, Augusta, Ga.

Question Period and Discussion.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

GUEST SPEAKER

JAMES B. AREY, M.D.

Philadelphia, Pa.

Pathologist at St. Christopher's Hospital for Children; Professor of Pathology at Temple University School of Medicine.

The Role of the Pathologist in Pediatrics.

Bronchography with Barium in Children.

DONALD E. KILLILEA and WILLIAM W. WARING, New Orleans, La.

A technic of bronchography in children will be described which obviates the use of a darkened fluoroscopy room. A mixture of barium sulfate and sodium carboxymethylcellulose has been used recently as a substitute for the organic iodine preparations heretofore in vogue. The essayist will outline the preparation of this innocuous medium, its instillation, as well as the patient manipulation required to fill the various bronchopulmonary segments.

Business Session.

Intermission—Visit Exhibits

Clinical Aspects of Human Growth Hormone.

DONAN K. KEELE, Oklahoma City, Okla

Convulsive Disorders in Children.

JEAN HOLOWACH, St. Louis, Mo.

One thousand fifty-four cases of epilepsy in childhood are reviewed from the following standpoints: incidence, age of onset, frequency distribution of seizure types, intelligence and prognosis.

Salicylate Intoxication.

VIRGINIA PEDEN, St. Louis, Mo.

SECTION ON PHYSICAL MEDICINE AND REHABILITATION

Officers

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Hosts from the Saint Louis Medical Society:

D. ELLIOTT O'REILLY, *Chairman*
HARRY L. ACKER
JOHN W. DEYTON
OTAKAR MACHEK
ERIC REISS
HENRY ROSENFELD
FRANZ U. STEINBERG

Monday, October 31, 2:00 p.m.

Kiel Auditorium

Chairman's Address: The Physiatrist in Private Practice. (30 min.)

HERBERT W. PARK, Richmond, Va.

In the past decade several physicians have entered into the private practice of physical medicine and rehabilitation in the South. It is evident that increasing numbers of physicians will establish themselves in this type of practice in the future. The purpose of the paper is to acquaint the members of the Association with the private practice of this specialty, and how this service may be used to the best advantage of the referring physician and his patient.

Rehabilitation of the Flail Hand. (15 min.)

JOHN W. DEYTON, St. Louis, Mo.

The author will discuss the neurological aspects of the flail hand followed by surgical, physical and mechanical technics used in rehabilitation.

Intermission—Visit Exhibits

Forand Bill Alternative—Community Rehabilitation Centers. (15 min.)

ROBERT A. GREGG, Greensboro, N. C.

The need for and the function of community rehabilitation centers in the rehabilitation of long term patients will be discussed.

A Study of Hemiplegia in a Chronic Disease Hospital. (15 min.)

FLORENCE I. MAHONEY and CHARLES MURRY WYLIE, Baltimore, Md.

We describe our experiences with all hemiplegic patients totaling about 300, who were admitted to a Baltimore rehabilitation center during the years 1956 through 1959. The data are analyzed according to age, sex, race, marital status; we will describe their scores on an index of independence, the numbers reaching maximum benefit and the time to do so; the duration of hospital stay, and deaths in hospital will also be given. We show that success in rehabilitation is related to age, speed in applying for rehabilitation, and severity of disability.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

GUEST SPEAKER

ALFRED R. SHANDS, JR., M.D.

Wilmington, Del.

Medical Director, Nemours Foundation for Crippled Children; Chairman, Committee on Prosthetics Education and Information, National Research Council.

Physical Medicine and Rehabilitation as Viewed by the Orthopedic Surgeon. (30 min.)

The guest speaker has been very closely related to the field of physical medicine and rehabilitation since its inception. As an active member of the Baruch Committee on Physical Medicine he played an important role in the development of the specialty. He is widely known throughout the South for his work with crippled children. The purpose of Dr. Shands' paper is to report his personal observations on the role of the specialty of physical medicine and rehabilitation in the South.

Bad Effects from the Prolonged Use of Cortisone. (15 min.)

GEORGE D. WILSON, Asheville, N. C.

The author will discuss his personal experiences with cortisone, pointing out the necessary precautions to be followed for long term patients.

Intermission—Visit Exhibits

The Rehabilitation of the Paraplegic Patient. (15 min.)

FRANZ U. STEINBERG, St. Louis, Mo.

The salient points of management are discussed under the following headings: (1) management of urinary complications; (2) care of the skin; (3) metabolic problems; (4) physical rehabilitation with emphasis on independence in the everyday activities, training for ambulation, bracing, etc.; and (5) psychological and social problems. Vocational counseling, the role of medical specialties and para-medical professions is discussed.

Treatment of Complications in Hemiplegia. (15 min.)

LEWIS A. LEAVITT and HERMAN WING, Houston, Texas

The authors will discuss post-hemiplegic shoulder pain, contractures and deformities, kinesthetic difficulties with ambulation and lower extremity bracing, aphasia and mental aberrations. Methods of prevention and treatment will be presented.

Tuesday, November 1

6:30 p.m.—Dutch Treat Cocktail Party, Sheraton-Jefferson Hotel, North Room.

Wednesday, November 2, 2:00 p.m.

Kiel Auditorium

Adjustable Brace for Cerebral Palsy Children. (15 min.)

OTAKAR MACHEK, St. Louis, Mo.

There are numerous functions of a brace, however, sometimes their purpose is misunderstood. Many times the expense of a brace presents a problem. On the other hand, many parents want to obtain braces for their child even though it is not indicated. It is difficult to explain to these people the realistic objectives of training and bracing. These problems led to our search for a temporary brace that could be used for children between the ages of five and fourteen. Such a brace was developed with adjustable telescoping pelvic band and an adjustable spinal attachment, adjustable thigh and calf uprights. The thigh and calf posterior bands can be changed by using insets to make them smaller. The braces are removable, and there are different sizes of surgical shoes which will accommodate most children. Braces help us to evaluate, help with parents' acceptance, and may save unnecessary expense when bracing is not indicated.

Manipulation of the Neuromuscular Unit via the CNS Periphery. (30 min.)

MANFRED R. M. BLASHY, Temple, Texas

The author will discuss the use of orthokinetics in the treatment of orthopedic, neurologic and arthritic conditions. Many attempts to influence the neuromuscular unit have been put into practice in physical medicine in the form of special exercises in order to improve muscle function in a number of diseases and the disabilities caused by them. The method of orthokinetics is one of them. It has shown considerable promise in the past six years.

Intermission—Visit Exhibits

A Review of the Fibrositis Question. (20 min.)

CARL W. LAFRATTA and J. B. PORTERFIELD, Kecoughtan, Va.

This will be essentially a review of the subject, with some ideas on pathological concepts, possible etiologies, and especially some ideas on classification, incidence, and misuse of terms, with an attempt to clarify the subject in this respect. In addition, they will cite the relationship of herniated fat globules and syndromes resultant from same. Present day management of "fibrositis," or as might be better termed, myofascial pain syndromes will be discussed as well as a few other facets of this problem; for example, the relationship of psychogenic rheumatism and the clarification of the differentiations in this respect.

Rehabilitation of the Unstable Knee. (15 min.)

J. F. CARLO, San Antonio, Texas

The author will discuss the function of the knee in standing, walking and in moving from a sitting to a standing position; the role of the quadriceps muscle in knee rehabilitation; the mechanism for deficiency in muscle strength; some of the causes of atrophy; the exercise technic used by the author for rehabilitation of an unstable knee.

Business Session.

SECTION ON PROCTOLOGY

Officers

Chairman.....FRED B. HODGES, JR., Atlanta, Ga.
Vice-Chairman.....SAMUEL J. FREUND, St. Louis, Mo.
Secretary.....PATRICK H. HANLEY, New Orleans, La.

Hosts from the Saint Louis Medical Society:

FRANCIS J. BURNS, *Chairman*
BERTRAND D. COUGHLIN
VIRGIL O. FISH
SAMUEL J. FREUND
GEORGE J. FUCHS
RUBIN HACKMEYER
LEO J. LEBLANC
JACOB STOLAR

Presentations limited to fifteen minutes, including time required for lantern slides and/or motion pictures. Discussion limited to five minutes.

Monday, October 31, 2:00 p.m.

Kiel Auditorium

Chairman's Address: Anorectal Surgery in the Elderly Patient.

FRED B. HODGES, JR., Atlanta, Ga.

Diseases of the anus and rectum, requiring surgery, in elderly individuals is discussed. The examination and preoperative evaluation of these patients are presented. Preparation, hospitalization, management of anesthesia, postoperative treatment and complications are discussed.

GUEST SPEAKER

WALTER A. FANSLER, M.D.

Minneapolis, Minn.

Emeritus Professor of Surgery, University of Minnesota, Division of Proctology; Consulting Proctologist, Glen Lake Sanitorium.

Clinical versus Histological Classification of Cancer of the Colon and Rectum.

When the physician receives a report from the pathologist that the biopsy of a rectal tumor shows it to be carcinoma, the question of operative procedure immediately arises. There is considerable difference of opinion as to just what evidence is sufficient to make the diagnosis of carcinoma. Furthermore, there is difference of opinion as to whether it is always necessary to perform radical operations, such as abdominoperineal resection, simply because of a histological diagnosis of carcinoma.

Discussion to be opened by CHARLES A. NEUMEISTER, Minneapolis, Minn.; PATRICK H. HANLEY, New Orleans, La.

Ulcerative Colitis in Children.

MATTHEW A. LARKIN, Miami, Fla.

Ulcerative colitis remains an enigma as to exact etiology and procedures of treatment. It is usually considered a disease of early adults. When it occurs in children, the author will discuss its long term management and observation by the same practitioner.

Discussion to be opened by EDGAR BOLING, Atlanta, Ga.

Surgical Management of Anorectal Complications of Chronic Ulcerative Colitis.

PAUL J. FUZY, JR., Fort Lauderdale, Fla.

The anorectal complications of chronic ulcerative colitis demand conservative care with avoidance of extensive local surgery during the active phase. Surgical treatment is generally limited to minor procedures for pain relief. Even during remissions of the colitis, extensive anorectal surgery presents considerable risk of infection with resultant sphincter destruction. Sigmoidoscopy should therefore, always be done prior to any elective anorectal surgery to be certain that unsuspected chronic ulcerative colitis is not present.

Discussion to be opened by MATTHEW A. LARKIN, Miami, Fla.

Intermission—Visit Exhibits

Postoperative Complications After Colon Surgery.

EDGAR BOLING and HENRY FINCH, Atlanta, Ga.

A series of more than 150 laparotomies for colon surgery is reviewed and the postoperaitve complications presented. There was no mortality from peritonitis. This has been accomplished by the use of antibiotics both postoperatively as well as preoperatively. The side effects of different antibiotics are discussed.

Discussion to be opened by GEORGE H. THIELE, Kansas City, Mo.

Presacral Tumors.

ALEJANDRO F. CASTRO, Washington, D. C.

This is a clinical analysis of 24 cases of tumors found in the presacral area. Their etiology, diagnosis and manner of treatment are discussed. Three cases are presented in detail as exemplifying unusual circumstances as well as methods of surgical approach to the retrorectal area. The majority of these tumors occurred in women and were of dermoid origin.

Discussion to be opened by ROBERT J. ROWE, Dallas, Texas.

Management of Postoperative Rectal Hemorrhage.

NORMAN D. NIGRO, Detroit, Mich.

Severe postoperative anorectal hemorrhage, although uncommon, is a complication all surgeons must be prepared to treat. It may be immediate or delayed and the source is either external or internal. Delayed internal hemorrhage is the important problem and often requires the application of pressure by various types of packs and tranfusion. Hemorrhage resulting from a deficient hemostatic mechanism is rare but must be considered and treated accordingly.

Monday, October 31

6:30 p.m.—Cocktails and dinner for Section members at the Park Plaza Hotel, Kingshighway and Maryland Avenue. Tickets are available in the meeting room of the Proctologic Section, at a table near the registration area, and from members of the Host Committee.

Tuesday, November 1, 11:00 a.m.

Kiel Auditorium

Proctologic closed circuit television program originating from the St. Louis City Hospital.

11:00-12:00 noon Proctology: Discussion and Demonstrations on Malignant Diseases of Colon and Rectum; Inflammatory and Ulcerative Lesions of Colon and Rectum; Anal Cryptitis; Pararectal Abscess; Anal Fistulae; Hemorrhoids; Anorectal Disorders that may be Confused with Hemorrhoids.

SAMUEL J. FREUND, St. Louis, Mo., Moderator

1. **Polyps and Malignancy of the Rectum and Colon.**
   FRANCIS J. BURNS, St. Louis, Mo.
2. **Non-malignant Diseases of the Rectum and Colon.**
   BERTRAND D. COUGHLIN, St. Louis, Mo.
3. **Abscesses and Fistulae.**
   VIRGIL O. FISH, St. Louis, Mo.
4. **Hemorrhoids.**
   JACOB STOLAR, St. Louis, Mo.

Tuesday, November 1

12:00-2:00 p.m.—Luncheon.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

Treatment of Hemorrhoidal Thrombosis.

W. CLOUGH WALLACE, Greenville, S. C.

The author presents his present concept of the causes of hemorrhoidal thrombosis and his idea of a rational and organized approach to the problem through the use of phenylbutazone for treatment or relief and surgery for definitive therapy. An amputative technic for use in massive prolapsed thrombosis is presented.

Discussion to be opened by CHARLES A. NEUMEISTER, Minneapolis, Minn.

The Problem of Colon and Rectal Polyps in Children.

THOMAS S. GOWIN, Coral Gables, Fla.

This paper is concerned with a brief mention of the first report of polyps in the colon and rectum of children and a report of the experience of other authors. The distribution of polyps throughout the colon and rectum is discussed, as is the incidence of polyps, the symptoms enumerated, the treatment discussed. A discussion is also presented about the development of multiple polyps and the differential diagnosis of multiple polyps and diffuse gastrointestinal polyposis.

Discussion to be opened by PAUL J. FUZY, JR., Fort Lauderdale, Fla.

Arteriovenous Angioma of the Colon.

CARL C. MENDOZA, Jacksonville, Fla.

A 57 year old white male with painless rectal bleeding two days prior to first consultation, intermittent diarrhea, no fever, no previous bleeding. On admission to hospital hemoglobin 14.4 grams, hematocrit 45. Repeat studies showed similar reading. Blood volume study showed deficiency of between 500 and 1000 cc. Sigmoidoscopy negative for 20 cm. X-ray showed a pedunculated lesion of descending colon, removed surgically. Diagnosis of arteriovenous angioma of colon.

Discussion to be opened by PATRICK H. HANLEY, New Orleans, La.

Intermission—Visit Exhibits

Business Session.

Wednesday, November 2, 8:30 a.m.

8:30-10:30 a.m.—Operative Clinics by the Section members in Saint Louis, Barnes Hospital.

10:30-12:00 noon—Joint Meeting with the Southeastern Proctologic Society, Barnes Hospital.

Officers of Southeastern Proctologic Society:

Chairman.....BERTRAND D. COUGHLIN, St. Louis, Mo.
Secretary.....PATRICK H. HANLEY, New Orleans, La.

SECTION ON PUBLIC HEALTH

Officers

Chairman.....T. PAUL HANEY, Tulsa, Okla.
Secretary.....C. HOWE ELLER, Clayton, Mo.

Hosts from the Saint Louis Medical Society:

GEORGE D. KETTELKAMP, *Chairman*
ALBERT B. EISENSTEIN
C. HOWE ELLER
M. K. KING
GUY N. MAGNESS
J. EARL SMITH
MELVIN TESS

Wednesday, November 2, 9:00 a.m.

Kiel Auditorium

A joint meeting of the Sections on General Practice and Public Health.

Epidemiology of Viral Hepatitis and Related Diseases.

JAMES O. MASON, Atlanta, Ga.

Viral hepatitis, caused by at least two hepatotropic agents not yet identified by cultural or serological methods, remains an unsolved communicable disease problem. Current epidemiological trends suggest that the 1960-1961 hepatitis season will

be a major one in terms of past experience, and well over 40,000 cases are expected to occur in the nation during the next year. Ultimate control of hepatitis will depend upon information derived from accurate studies and long term follow-up of cases and outbreaks.

Discussion to be opened by YATES TROTTER, St. Louis, Mo.

A Cooperative Program for Care of the Chronically Disabled.

SUMNER Y. ANDELMAN, Tulsa, Okla.

Care of the chronically ill revolves about a comprehensive program based on preventive measures, periodic health surveys, therapy of diseases found and rehabilitation. The family physician should play the role of coordinator, but he must enlist the help of other specialties and ancillary groups. A very helpful, but often neglected adjunct in therapy is the public health nurse or the visiting nurse.

Discussion to be opened by T. PAUL HANEY, Tulsa, Okla.

Etiology and Therapy of Diabetic Retinopathy—A New Approach.

JOHN K. FINLEY, Haddonfield, N. J.

Serum chylomicron levels were found elevated in diabetics regardless of their state of glucose control. This finding may indicate the existence of a primary disturbance of fat metabolism in diabetes other than the disturbance occurring as a result of inadequate glucose utilization. This observation led to the use of heparin in an attempt to reduce the lipemia in patients with diabetic retinosis. A reversal of characteristic lesions of diabetic retinosis has been observed in patients upon this therapy.

Intermission—Visit Exhibits

A New Agent for Symptomatic Relief of Migraine Headache.

ROBERT E. RYAN, St. Louis, Mo.

This paper will discuss the use of a new agent to be used in relieving the symptoms of a typical attack of migraine. This preparation is entirely new, as is its method of application. The results obtained with this preparation are very encouraging.

A New and Improved Method for the Treatment of Trichomonas Vaginalis and Other Causes of Vaginal and Cervical Leukorrheas.

KARL J. KARNAKY, Houston, Texas

The paper will consist of the author's newest and improved method of treating vaginal and cervical infections, based on his past 28 years of research on vaginal and cervical leukorrhea. The author has now discovered how to lower the vaginal pH to 1.0 without burning the vagina. Low pH has given the best results in treatment of vaginal and cervical leukorrhea. A new vaginal medication retainer will be presented. New vaginal and cervical adhesions will also be presented.

Wednesday, November 2, 2:00 p.m.

Kiel Auditorium

Epidemiology of Poliomyelitis in Arkansas.

WILLIAM M. MARINE, A. M. WASHBURN, CLIFTON R. GRAVELLE and TOM D. Y. CHIN, Kansas City, Kan.

The 317 cases of poliomyelitis in 1959 represented Arkansas' worst year since 1954. The 73 cases, 27.4 cases per 100,000 population, in Pulaski County where the capitol, Little Rock, is located was the first epidemic in the South since the general use of the Salk vaccine. These cases were studied thoroughly from an epidemiological and etiological point of view. Date of onset and vaccination status were obtained on each case, and 60-day follow-up examinations were made on the paralytic cases to determine the severity of residual paralysis. Stool specimens were obtained for virus isolation from 83% of all the cases. Ninety-four per cent of the enteroviruses isolated from paralytic cases and 69% from the non-paralytic cases were poliovirus, type 1. Incidence by age, in 1959, was highest in the under 5 population of both races. This was also true in the past except in 1954 when the rates in the 0-4 and 5-9 white population were comparable. A striking incidence was observed in the Negro population, which accounted for 35% of the cases in 1959. Prior to the general use of the Salk vaccine, the Negro attack rate had been considerably below that in the white population, accounting for only 6—14% of the cases. In 1959, the Negro attack rate in Pulaski County was three times that in the white population, whereas in previous outbreaks the white incidence was two or three times that of the Negro population. A Salk vaccination survey conducted in Pulaski County showed that large segments of the population under 20 were poorly vaccinated, especially in the lower socioeconomic groups and Negro population. The age group under 5 was the poorest vaccinated. Calculation of vaccine effectiveness showed that even in the Negro population under 10 which experienced the greatest incidence 3 or more shots of Salk vaccine reduced paralytic disease 85%. Factors believed contributory to the altered epidemiologic pattern of poliomyelitis in this Southern state will be discussed.

Problems of Epidemiological Surveillance in a Live Attenuated Polio Vaccine Program.

A. W. MENZIN, G. M. ERICKSON, M. E. FLIPSE, L. B. CLAYTON, Miami, Fla.; A. V. HARDY, Jacksonville, Fla.

Intermission—Visit Exhibits

Cardiovascular Survey of Carter County, Oklahoma.

FORREST R. BROWN, Oklahoma City, Okla.

Detection of Diabetes.

HAROLD K. ROBERTS, Clayton, Mo.

There are more than one million undetected diabetics in the United States. The discovery of the diabetic can be accomplished in a number of ways, which will be described. Information will be used from the mass screening campaigns performed in Saint Louis. The results of the 1959-1960 campaign will be described, and the discrepancy of the 120 mg. postprandial blood sugar and the glucose tolerance test in detecting diabetics will be discussed. The importance and technics that may be used by the family physician will also be mentioned.

Business Session.

SECTION ON RADIOLOGY

Officers

Chairman.....J. MAXEY DELL, JR., Gainesville, Fla.
Vice-Chairman..HERBERT C. FRANCIS, Nashville, Tenn.
Secretary.....SEYMOUR OCHSNER, New Orleans, La.

Hosts from the Saint Louis Medical Society:

JOSEPH C. PEDEN, *Chairman*
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VICTOR T. JONES
STANLEY S. NEMEC
L. R. SANTE
HYMAN R. SENTURIA
WAYNE A. SIMRIL
PAUL F. TITTERINGTON
HUGH M. WILSON
OSCAR C. ZINK

Presentations limited to twenty minutes, including time required for lantern slides and/or motion pictures; the Chairman and out-of-territory essayist to be allowed thirty minutes. Discussion limited to five minutes.

Monday, October 31

12:30 p.m.—Luncheon Meeting at the Sheraton-Jefferson Hotel, Public Function Room. No. 8.

Monday, October 31, 2:00 p.m.

Kiel Auditorium

Pathogenesis of Nonstrangulating Small Intestinal Obstruction.

ROBERT D. SLOAN, Jackson, Miss.

Some of the factors influencing the gross obstructive changes occurring in nonstrangulating mechanical obstruction of the small bowel will be discussed. Emphasis will be placed on the radiologic findings observed in the course of experimental studies.

Studies on Intussusception in Infants.

KIRK R. DEIBERT, Florence, Ala.

Reduction of the usual ileocolic intussusception can be accomplished readily by a controlled barium clysma and fluoroscopy. A preliminary plain film of the abdomen should be obtained and correlated with the clinical knowledge of the pediatrician before starting the procedure. The radiation hazard can be reduced by limiting the number of radiographic exposures and fluoroscopy to three minutes. If gangrene is suspected, then the examination should not be performed. Some surgeons feel that despite radiologic reduction and with clinical stability, a laparotomy should be performed to forestall a recurrence.

Discussion to be opened by HERBERT C. FRANCIS, Nashville, Tenn.

Mesenteric Vascular Diseases.

JOHN D. REEVES, Gainesville, Fla.

GUEST SPEAKER

EMIL FREI, III, M.D.

Bethesda, Md.

Head, Chemotherapy Service, National Cancer Institute.

Practical Aspects of Chemotherapy in Neoplasms.

Intermission—Visit Exhibits

Chairman's Address: Communication and Understanding.

J. MAXEY DELL, JR., Gainesville, Fla.

The question of communication and understanding between physician and radiologist is quite often a difficult and also a neglected one. It is hoped that the various problems concerning the limitations and possibilities of radiology presented in this paper will be helpful. In order for the clinician to obtain the maximum benefit for his patient there must be adequate and frequent communication between clinician and radiologist.

Contrast Examination of the Larynx (Laryngograms).

SUMNER HOLTZ, WILLIAM E. POWERS and JOSEPH OGURA, St. Louis, Mo.

A comparison of the roentgen findings and the surgical specimen in 99 consecutive cases has confirmed the high correlation and value of laryngograms.

Peptic Ulcers in Children.

ROGER M. BERG, Bismarck, N. D.

Peptic ulcer in childhood is no longer a diagnostic curiosity. Ninety-six children with ulcers were diagnosed radiologically by our group in the last ten years. In our series about 10% of children referred for stomach examination have had an ulcer. Our age distribution suggests that the incidence per year is probably about equal. There were more males than females with duodenal ulcer, the ratio being 3 to 2. Duodenal ulcers outnumbered gastric ulcers 8 to 1. The percentage with a positive family history of ulcer was 40 per cent.

Business Session.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

A joint meeting of the Sections on Gastroenterology, Pathology, Radiology and Surgery.

***Panel Discussion:* A Symposium on Peptic Ulcer.**

Moderator: GUY HORSLEY, Richmond, Va.

Part I—Gastric Ulcer

Pathology—SIDNEY SALTZSTEIN, St. Louis, Mo.

Radiology—WENDELL SCOTT, St. Louis, Mo.

Gastroenterology—WADE VOLWILER, Seattle, Wash.

Surgery—JAMES E. THOMPSON, New York, N. Y.

Intermission—Visit Exhibits

Part II—Duodenal Ulcer

Pathology—SIDNEY SALTZSTEIN, St. Louis, Mo.

Radiology—JOHN D. REEVES, Gainesville, Fla.

Gastroenterology—CHARLES M. CARAVATI, Richmond, Va.

Surgery—JAMES E. THOMPSON, New York, N. Y.

Tuesday, November 1

5:00-7:00 p.m.—Cocktail party for visiting radiologists and wives, at University Club in Saint Louis, sponsored by the radiologists of Saint Louis.

SECTION ON SURGERY

Officers

Chairman.....GUY HORSLEY, Richmond, Va.
Vice Chairman.....ARTHUR I. CHENOWETH, Birmingham, Ala.
Secretary.....M. L. MICHEL, New Orleans, La.

Hosts from the Saint Louis Medical Society:

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EDWARD H. BOWDERN
THOMAS H. BURFORD
KENNETH B. COLDWATER
JAMES F. DOWD
EMMETT B. DRESCHER
GEORGE T. GAFNEY
ROLAND S. KIEFFER
JOHN V. KING
LEO V. MULLIGAN
PIERCE W. POWERS
J. WILLIAM THOMPSON
WILLIAM L. TOMLINSON
FRANKLIN E. WALTON

Presentations limited to fifteen minutes, including time required for lantern slides and/or motion pictures; the Chairman and out-of-territory essayist to be allowed one hour. Discussion limited to five minutes.

Monday, October 31, 2:00 p.m.

Kiel Auditorium

Surgical Therapy of Aortic Insufficiency.

OSCAR CREECH, JR., ROBERT SCHRAMEL and KEITH REEMSTMA, New Orleans, La.

Aortic insufficiency results from rheumatic endocarditis, syphilis and dissecting aneurysm of the aorta. In its severe form it is incapacitating and rapidly fatal. The use of a prosthetic ball valve placed in the descending thoracic aorta may reduce regurgitant flow by 50 to 75 per cent, but the long term results have not been satisfactory. During the past three years the direct repair of aortic insufficiency utilizing the pump oxygenator and cardio-pulmonary bypass has yielded gratifying results. Technics comprise creation of a bicuspid valve or the insertion of prosthetic leaflets. Illustrative cases will be presented to show the circumstances under which these technics are applicable.

Immediate Reconstruction of the Mandible in Tumor Surgery.

DUNCAN M. MCKEE, New Orleans, La.

Intermission—Visit Exhibits

Chairman's Address: Carcinoma of the Breast.

GUY HORSLEY, Richmond, Va.

Radical amputation of the breast still produces the best results in carcinoma of the breast. Five year survival has been increased recently due mainly to earlier treatment and the addition of hormone therapy. Prophylactic oophorectomy in all stages of cancer of the breast seems to have increased the survival rate. Surgical oophorectomy, along with radical mastectomy in the premenopausal patient, as practiced for the past twenty-five years, is reviewed and discussed. Treatment of the recurrent or inoperable case of carcinoma of the breast is also discussed.

The Influence of the Incidence of Thyroid Malignancies on Selection of Therapy in Thyroid Disease.

BENJAMIN F. BYRD, JR., and F. M. MCELHANNON, Nashville, Tenn.

A report of eighty-two instances of cancer of the thyroid gland is presented. These represent all such patients seen at two large general hospitals during a thirty-five year period. The significance of preoperative findings is discussed together with the apparent influence of therapy on eventual survival in patients having thyroid malignancy.

Recent Trends in Thyroid Surgery.

WILLIAM N. VIAR and JOSEPH M. DONALD, Birmingham, Ala.

A brief analysis of 100 consecutive cases of thyroid disease admitted to one private hospital during the five year period from 1954 to 1959 is being submitted. This group represents patients with Graves disease, toxic and non-toxic nodular goiter, solitary adenoma, thyroiditis and cancer. We will present our method of treating these diseases and what we feel to be the current thinking over the country concerning the proper therapy of thyroid disease.

Business Session.

Monday, October 31

6:30 p.m.—Dutch treat cocktail party and dinner. Location to be announced. Wives invited.

Tuesday, November 1, 9:00 a.m.

Kiel Auditorium

Flexor Tendon Grafts in Hand Injuries.

F. X. PALETTA, St. Louis, Mo.

Outline of the indications for tendon grafts to the flexor tendons of the hand will be enumerated. The technic of repair will be briefly presented. Cases describing the simple and complex problems related to flexor tendon injury will be demonstrated by preoperative and postoperative photographs. Emphasis of splinting in the convalescent period following injury will also be discussed.

Discussion to be opened by ROBERT M. O'BRIEN, Clayton, Mo.

Management of Snake Bite in Louisiana.

L. P. LAVILLE and EDWARD KREMENTZ, New Orleans, La.

This paper reviews our experience with snake bite at Lallie Kemp over the last three or four years. We have records on some 55 patients that have been bitten by venomous snakes there and all have been successfully treated without any mortality. This lack of mortality reflects the type of venomous snake we encounter rather than any particular type of therapy that we have developed. We have been interested in what is the best type of treatment and have evaluated a number of approaches. These include the use of anti-venom, cortisone, multiple incisions and suction, cold therapy, antibiotics, etc. There has been some morbidity from local necrosis with loss of a finger or a toe and one interesting complication from pneumonitis, secondary to hemolysis of red cells.

Management of Recurrent Intestinal Obstruction Due to Adhesions.

RALEIGH R. WHITE, Temple, Texas

As intestinal obstruction due to adhesions represents a large percentage of the cases of small bowel obstruction, the permanent relief of this complication poses a distinct challenge to surgical therapy. Although all adhesions may be divided at surgery and all obstructing kinks of the intestine straightened or resected, the end result is not satisfactory in many instances because during the healing process adhesions will recur with the attendant danger of acute bowel angulation and obstruction. The author reviews his surgical experience over the past ten years with a method of splinting the bowel on a long intestinal tube. The resulting adhesions are "controlled adhesions." This method of "internal fixation" has proved of value in preventing recurrent obstruction.

Intermission—Visit Exhibits

GUEST SPEAKER

JAMES E. THOMPSON, M.D.

New York, N. Y.

Chief of Surgical Service, Roosevelt Hospital; Associate Clinical Professor of Surgery, College of Physicians and Surgeons, Columbia University.

Surgical Treatment of Ulcerative Colitis.

Ulcerative colitis is discussed on the basis of a twenty-five year experience in the treatment of over four hundred patients who were admitted to the Roosevelt Hospital in New York City. The evolution of the surgical treatment during this period is described to point out the high mortality which attended ileostomy as the primary treatment for the acute fulminating variety of the disease. In recent years, a much lower mortality has attended the more radical approach to the handling of these cases. Attention is directed, in particular, to the early and late complications which are related to the construction of an ileostomy.

Changing Trends in the Treatment of Diverticulitis of the Colon.

ROBERT W. BARTLETT, St. Louis, Mo.

This presentation explains the rationale for the sharp swing from the conservative treatment of diverticulitis of the colon to the surgical approach, except for the milder cases of short duration. A discussion of the complications of diverticulitis is given, as well as the modern indications for resection which most commonly involves the sigmoid segment of the colon. The indications for one-stage and also multiple-stage resections are included.

Discussion to be opened by RICHARD V. BRADLEY, St. Louis, Mo.

A Physiologic Operation for the Treatment of Esophageal Hiatal Hernia (Hernia Repair Vagotomy, and Pyloroplasty).

J. LYNWOOD HERRINGTON, JR., Nashville, Tenn.

Closure of the crural defect present in a sliding type of esophageal hiatal hernia, in general, gives satisfactory results. However, a certain percentage of patients continue to complain of epigastric and substernal discomfort, even though there is no radiologic evidence of recurrent hernia. It has been shown that regurgitation can still occur, even though the esophagogastric junction lies below the diaphragmatic level. During the past four years we have managed the sliding type of esophageal hiatal hernia by a combined operation consisting of hernia repair, bilateral vagotomy and a drainage procedure on the stomach.

Tuesday, November 1, 2:00 p.m.

Kiel Auditorium

A joint meeting of the Sections on Gastroenterology, Pathology, Radiology and Surgery.

***Panel Discussion:* A Symposium on Peptic Ulcer.**

Moderator: GUY HORSLEY, Richmond, Va.

Part I—Gastric Ulcer

Pathology—SIDNEY SALTZSTEIN, St. Louis, Mo.

Radiology—WENDELL SCOTT, St. Louis, Mo.

Gastroenterology—WADE VOLWILER, Seattle, Wash.

Surgery—JAMES E. THOMPSON, New York, N. Y.

Intermission—Visit Exhibits

Part II—Duodenal Ulcer

Pathology—SIDNEY SALTZSTEIN, St. Louis, Mo.

Radiology—JOHN D. REEVES, Gainesville, Fla.

Gastroenterology—CHARLES M. CARAVATI, Richmond, Va.

Surgery—JAMES E. THOMPSON, New York, N. Y.

SECTION ON UROLOGY

Officers

Chairman.....HJALMAR CARLSON, Kansas City, Mo.
Vice-Chairman....REESE C. COLEMAN, JR., Atlanta, Ga.
Secretary.....WILLIAM H. MORSE, Memphis ,Tenn.

Hosts from the Saint Louis Medical Society:

CHARLES H. NICOLAI, *Chairman*
J. PAUL ALTHEIDE
EDWARD J. BECKER
LOUIS N. BERARD
ROBERT V. BRENNAN
CYRUS E. BURFORD
E. HUMBER BURFORD
JOHN E. BYRNE
JUSTIN J. CORDONNIER
JULES H. KOPP
H. H. KRAMOLOWSKY
JAMES M. MACNISH
DONALD J. MEHAN
WILLIAM F. MELICK
ROBERT K. ROYCE
ALVIN E. VITT
CARL A. WATTENBERG

Presentations limited to twenty minutes, including time required for lantern slides and/or motion pictures; the Chairman and out-of-territory essayist to be allowed thirty minutes. Discussion limited to five minutes.

Monday, October 31, 9:00 a.m.

Kiel Auditorium

Unsuspected Carcinoma in Surgical Specimens of the Prostate.

ALBERT H. JOSLIN, ROBERT LICH, JR., and MALCOLM L. BARNES, Louisville, Ky.

A review of 748 consecutive prostatectomies revealed histologic evidence of prostatic carcinoma in 113 specimens. This series of patients was studied with regard to lesion size, postoperative clinical behavior, age relationship and longevity.

Where Are the Early Carcinomas of the Prostate?

JAMES F. O'MALLEY, Kansas City, Mo.

This will be a review of the total prostatectomies in two large hospitals with a notation of the small percentage of radical prostatectomies for a disease which when diagnosed early can be cured but otherwise is fatal. The discussion will also include the proper approach to diagnosis and the newer methods of treatment.

The Use of Intravenous Fat Emulsion in Control of Hemorrhage Due to Thrombolysis Activity.

ALBERT W. BIGGS, MARION DOUGDALE and SAMUEL L. RAINES, Memphis, Tenn.; LOUIS A. NEFT, Champaign-Urbana, Ill.

Five patients with prostatic disease and hemorrhage due to thrombolysis activity were successfully treated with intravenous fat emulsion. Four of the patients had carcinoma of the prostate and one had benign prostatic hypertrophy. Two patients activated thrombolysis prior to surgery. All diagnoses were suspected on observation of clotted blood and confirmed by the Department of Hematology.

Intermission—Visit Exhibits

Chairman's Address: Electron Microscopy of the Kidney in Health and Disease.

HJALMAR CARLSON, Kansas City, Mo.

Spontaneous Vesico-Intestinal Fistulas.

B. W. ANDREWS, Kansas City, Mo.

A brief review of the etiology, physical findings, and methods of diagnosis; analysis of cases found in urological practice, and a summary of methods of treatment.

Diseases and Abnormalities of the Female Urethra.

PARK NICELY and ARTHUR WELLING, Knoxville, Tenn.

From a position in medical literature of almost complete neglect, the female urethra is now acknowledged to have symptoms suggestive to pelvic diseases. The urethra is often overlooked by the physician in making a pelvic examination. Due to its location, at the roof of the vagina, it is very subject to infections from the vagina and rectum. We examine the urethra for stricture, urethritis, tumor growth and for the possibility of diverticulum. If patients do not respond to dilatation, we then turn to urethrograms.

Panel discussion of all papers.

Tuesday, November 1, 9:00 a.m.

Kiel Auditorium

Urological Infections in Childhood.

ROBERT H. OWENS, Kansas City, Mo.

This paper includes a survey of children sent to the urologist for the diagnosis and treatment of recurrent urinary tract infections. This paper reviews the significance of recurrent urinary tract infection in childhood, the orderly progress of diagnosis and the proper approach to treatment and follow-up in an effort to prevent renal damage and chronic urinary tract infection.

The Megacystis Syndrome.

ALBERT J. PAQUIN, JR., Charlottesville, Va.

The megacystis syndrome is a review of 27 patients with recurrent or persistent pyuria, fever and abdominal pain, who were found to have thin walled bladders, with extraordinarily large trigones, dilated ureteral orifices and ureteral reflux. Surgical correction of the reflux and enlargement of the bladder neck produced significant improvement in patients followed for one or more years.

Management of Exstrophy of the Urinary Bladder by Primary Closure.

IAN M. THOMPSON, Columbia, Mo.

The vicissitudes of supravesical diversion of urine in exstrophy of the bladder are well known. Experience with reconstructive procedures to permit utilization of the bladder as a reservoir has not been great, yet successful rehabilitation has been achieved and is instigative of this report. A comparison of the results in a group of children in whom the Powell procedure was done is made with patients managed by the Gersuny operation, and by variations of the Sweetser type of bladder closure.

Intermission—Visit Exhibits

Nephrocalcinosis.

GORDON L. MATHES, Memphis, Tenn.

A case of severe nephrocalcinosis and nephrolithiasis due to or associated with renal tubular acidosis is prescribed. Correction of the acidosis by Shol's solution, reduction of dietary calcium, and increased fluid intake have been beneficial. The possible use of chelating agents has been discussed.

Pudendal Block and Neurectomy in Bladder Neck Obstruction.

JOHN D. YOUNG, JR., and EARL P. GALLEHER, JR., Baltimore, Md.

Pudendal block and neurectomy are recognized methods of study and treatment of bladder neck obstruction in the paraplegic. The procedures have been found useful also in the management of obstructive symptoms in some patients who have no apparent neurological deficit. Methods for block and neurectomy are presented with reports of eight patients.

Panel Discussion of all papers.

Business Session.

Wednesday, November 2, 9:00 a.m.

Kiel Auditorium

A joint meeting of the Sections on Medicine, Pathology and Urology.

***Panel Discussion:* A Symposium on Chronic Pyelonephritis.**

Moderator: GEORGE E. SCHREINER, Washington, D. C.

Panel Members:

Long-Term Control of Infection.

CHEVES M. SMYTHE, Charleston, S. C.

Obstruction, Instrumentation and Calculi and Their Effects on the Urinary Tract.

FRED K. GARVEY, Winston-Salem, N. C.

Pyelonephritis Lenta and Its Relationship to Malignant Hypertension.

OTTO SAPHIR, Chicago, Ill.

Prevention and Care of Chronic Pyelonephritis in Children.

KURT LANGE, New York, N. Y.

Connective Tissue Response and the Local Immune Reaction in the Kidney as Related to Pyelonephritis.

CUTTING B. FAVOUR, Washington, D. C.

SCIENTIFIC GROUPS MEETING CONJOINTLY WITH SOUTHERN MEDICAL ASSOCIATION

AMERICAN COLLEGE OF CHEST PHYSICIANS, SOUTHERN CHAPTER

Statler-Hilton Hotel—Headquarters

Seventeenth Annual Meeting, October 30-31, 1960

Officers, Southern Chapter

President.....JOHN H. SEABURY, New Orleans, La.
First Vice-President..DEWITT C. DAUGHTRY, Miami, Fla.
Second Vice-President.....HENRY R. HOSKINS, San Antonio, Texas
Secretary-Treasurer.....JOSEPH W. PEABODY, JR., Washington, D. C.

Sunday, October 30, 8:30 a.m.

Statler-Hilton Hotel

8:30 a.m. Registration

9:00 a.m. Tuberculosis in an Industrial Plant.
JAMES T. PERRET and NEILL K. WEAVER, Baton Rouge, La.

9:25 a.m. Adrenocorticoids in the Treatment of Tuberculosis.
WILLIAM W. COULTER, JR., Lafayette, La.

9:50 a.m. Adult Histiocytosis: A Report of Ten Cases with Emphasis on Pulmonary Findings.
JOHN N. BICKERS and PERRY J. EKMAN, New Orleans, La.

10:20 a.m. Intermission

10:30 a.m. Physiological Studies on Patients with Bullous Emphysema.
CHARLES E. ANDREWS, Kansas City, Mo.; WILLIAM E. RUTH, Kansas City, Kan.

11:00 a.m. Hypertrophy of the Right Ventricle in Centrilobular and Panlobular Emphysema.
HERBERT C. SWEET, JAMES R. WYATT and PETER KINSELLA, St. Louis, Mo.

11:30 a.m. Spontaneous Pneumothorax.
MARK W. WOLCOTT, WILLIAM A. SHAVER and WILLIAM D. JENNINGS, Coral Gables, Fla.

12:00 noon Luncheon Recess

1:20 p.m. The Diagnosis and Management of Pleural Disease: An Analysis of 200 Cases.
M. N. ATAY, J. LEWIS YATES, HARRY V. LANGELUTTIG and CHARLES A. BRASHER, Mt. Vernon, Mo.

1:50 p.m. Early Signs and Warnings of Coronary Disease.
EDWARD MASSIE, St. Louis, Mo.

2:20 p.m. Controversial Aspects of the Management of Symptomatic Coronary Atherosclerosis.
THOMAS M. BLAKE, Jackson, Miss.

2:50 p.m. Intermission

3:00 p.m. Anomalous Vascular Patterns Found with Atrial Septal Defects.
ROBERT H. LEPERE, San Antonio, Texas.

3:30 p.m. Congenital or Acquired Absence or Hypoplasia of One Pulmonary Artery.
MILTON V. DAVIS, MAURICE ADAM and BEN F. MITCHEL, JR., Dallas, Texas

4:00 p.m. The Seventh Annual Paul A. Turner Memorial Lecture.
The Role of Angiography in the Management of Pulmonary Disease.
OSLER A. ABBOTT, Atlanta, Ga.

Monday, October 31, 8:30 a.m.

8:30 a.m. Registration

9:00 a.m. Correlative Studies of the Effect of the Varied Protein and Caloric Intakes and an Anabolic Steroid on Metabolism Following Pulmonary Surgery.
WATTS R. WEBB, RICHARD S. DOYLE and HECTOR S. HOWARD, Jackson, Miss.

9:30 a.m. Diagnosis and Management of Mediastinal Tumors.
DEWITT C. DAUGHTRY, Miami, Fla.

10:00 a.m. The Management of Metastatic Malignant Lung Disease.
CHARLES L. ROPER, St. Louis, Mo.

10:30 a.m. Intermission

10:40 a.m. Experiences with Emivan, A New Respiratory Stimulant.
GEORGE L. BAUM, C. HAGEDORN, IRA N. ROSENSTEIN and S. SILIPO, Coral Gables, Fla.

11:10 a.m. Clinical Repercussions from Healed Histoplasmosis.
JOSEPH W. PEABODY, JR., SOL KATZ and EDGAR W. DAVIS, Washington, D. C.

11:40 a.m. Is There a Relationship Between Histoplasmosis and Silicosis?
WILLIE S. CORTEZ, J. LEWIS YATES, HARRY V. LANGELUTTIG and CHARLES A. BRASHER, Mt. Vernon, Mo.; MICHAEL L. FURCOLOW, Kansas City, Kan.

12:15 p.m. Luncheon and Business Meeting.
Guest Speaker: HERMAN J. MOERSCH, Rochester, Minn., Director of Research and Medical Education, American College of Chest Physicians.

AMERICAN SOCIETY OF INTERNAL MEDICINE

Officers

President.....STEWART P. SEIGLE, Hartford, Conn.
President-Elect.....ROSS V. TAYLOR, Jackson, Mich.
Immediate Past President.....CLARK C. GOSS, Seattle, Wash.
Secretary-Treasurer.....CLYDE C. GREENE, JR., San Francisco, Calif.

October 28 and 29

Sheraton-Jefferson Hotel

The American Society of Internal Medicine will hold a meeting of their Board of Trustees all day Friday, October 28 and Saturday morning, October 29. A formal regional meeting of this organization will be held Saturday afternoon at 2:00 p.m. Both meetings will be held at the Sheraton-Jefferson Hotel.

SOUTHEASTERN PROCTOLOGIC SOCIETY

Chairman.....BERTRAND D. COUGHLIN, St. Louis, Mo.
Secretary.....PATRICK H. HANLEY, New Orleans, La.

Wednesday, November 2

Barnes Hospital

10:30-12:00 noon Joint meeting with the Section on Proctology.

SOUTHERN GYNECOLOGICAL AND OBSTETRICAL SOCIETY

Officers

Secretary-Treasurer.....LAWRENCE L. HESTER, JR., Charleston, S. C.

Sunday, October 30

Sheraton-Jefferson Hotel

6:30-8:00 p.m. Cocktail party

Monday, October 31

Sheraton-Jefferson Hotel

9:00 a.m.-1:00 p.m. Scientific Session

Monday, October 31

Sheraton-Jefferson Hotel

7:00 p.m. Cocktail party and banquet.

SCIENTIFIC EXHIBITS

JOHN ADRIANI, GEORGE SESSIONS, THOMAS UPTON, and JOHN PARMLEY, Charity Hospital and Louisiana State University School of Medicine, New Orleans, Louisiana: Fallacies and Misconceptions in Pediatric Anesthesia.

FRANKLIN L. ANGELL, EDGAR N. WEAVER, and JOHN A. MARTIN, Roanoke, Virginia: Premature Cranio Synostosis—A Visual Classification and A Report of Cases.

WILLIAM G. ANLYAN, DONALD SILVER, and HUGO L. DEATON, Duke University Medical Center, Durham, North Carolina: Clinical and Experimental Studies in the Treatment of Thrombotic Disorders.

JEANNE C. BATEMAN and HARRY N. CARLTON, George Washington University School of Medicine, Washington, D. C.: Chemotherapeutic Control of Cancer.

PAUL W. BOYLES, WILLIAM H. MEYER, and PAUL U. GERBER, University of Miami Medical School and Jackson Memorial Hospital, Miami, Florida: Experimental and Clinical Use of Fibrinolysin.

JOSEPH T. BRIERRE, JOSÉ L. GARCIA OLLER, and ROY SMITH, Mercy Hospital, New Orleans, Louisiana: Axial Rotary Encephalography (Axioencephalography).

DONOVAN C. BROWNE and ROBERT D. SPARKS, Tulane University School of Medicine and Browne-McHardy Clinic, New Orleans, Louisiana: Mechanism of Vomiting, Clinical Evaluation of Thiethylperazine.

HARRY N. CARLTON and JEANNE C. BATEMAN, Washington Hospital Center, Washington, D. C.: Psychological Care of the Chronically Ill.

FREDERICK A. CARPENTER, JOHN E. STEINHAUS, JOSEPH DAVID STEIN, GEORGE P. SESSIONS, and CLINTON D. McCORD, JR., Emory University School of Medicine, Atlanta, Georgia: The Sympathogalvanic Reflex in the Evaluation of Preanesthetic Drugs.

ALBERT E. CASEY, S. RALPH TERHUNE, ROBERTA B. FRANKLIN, MEHMET YILMAZ, and COURTENAY RENNEKER, JR., Birmingham Baptist Hospitals and the Medical College of Alabama, Birmingham, Alabama: Kith and Kin: North Alabama Whites Compared Anthropometrically with 139 Modern and Ancient Peoples.

W. CROCKETT CHEARS, JR., CECIL O. PATTERSON, JOHN W. FISHER, MILFORD O. ROUSE, HERBERT A. BAILEY, F. CLARK DOUGLAS and C. T. ASHWORTH, University of Texas Southwestern Medical School, Dallas, Texas: Nontropical Sprue.

J. HAROLD CONN, WILLIAM R. FAIN, and JAMES H. HENDRIX, JR., Veterans Administration Center and University of Mississippi Medical Center, Jackson, Mississippi: Diagnosis and Treatment of Intra-Oral Tumors.

C. DAVID COOPER, CHARLES S. WISE, CHARLES R. PETERSON, and JEROME EPSTEIN, George Washington University School of Medicine, Washington, D. C.: Double-Blind Evaluation of a New Agent in Musculoskeletal Disorders.

D. N. DANFORTH and F. S. SANTIAGO, Northwestern University Medical School, Chicago, Illinois: Simplified Postpartum Analgesia.

JESSE T. DAVIS, Corinth, Mississippi: Nerve Injuries of the Hand.

ROBERT B. DODD and WILLIAM A. SIMS, JR., Barnes Hospital and Washington University School of Medicine, St. Louis, Missouri: Electrocardiographic Monitoring During Anesthesia and Surgery.

LEWIS J. DOSHAY, Columbia Presbyterian Medical Center, New York, New York: New Horizons in Parkinson Therapy.

RALPH V. FORD, EDWARD W. DENNIS, ALFREDO C. MONTERO, and JOHN A. NICKELL, Baylor University College of Medicine, Houston, Texas: Four Decades of Diuretics.

MERRITT W. FOSTER, JR., Medical College of Virginia, Richmond, Virginia: Treatment of Alcoholism with Citrated Calcium Carbimide.

WENDELL D. GINGRICH and CLEMENS A. STRUVE, University of Texas Medical Branch, Galveston, Texas: Retinoblastoma: Course and Therapy Documented by Retinal Photographs.

DAN M. GORDON, New York Hospital and Cornell University Medical College, New York, New York: The Eye 65 and Over.

RAYMOND F. GRENFELL and ARTHUR H. BRIGGS, University of Mississippi Medical School, Jackson, Mississippi: A New Base Line for the Evaluation of Antihypertensive Therapy.

GEORGE M. HAIK, JOHN F. NOWELL, GEORGE S. ELLIS, and HARVEY H. KALIL, Louisiana State University School of Medicine and Hotel Dieu Hospital, New Orleans, Louisiana: Light Coagulation in Retinal Detachment Surgery.

CHARLES E. HORTON, HUGH H. CRAWFORD, CHARLES J. DEVINE, JR., PATRICK C. DEVINE, and CHARLES J. DEVINE, SR., Norfolk General Hospital and DePaul Hospital, Norfolk, Virginia: A One Stage Hypospadias Repair.

CHARLES M. HOWELL, JR., Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina: Systemic Management of Pruritus with Methdilazine Hydrochloride.

KARL JOHN KARNAKY, Houston, Teaxs: Causes and Treatment of Vaginal and Cervical Leukorrhea.

JOSEPH W. KELSO and JOSEPH W. FUNNELL, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma: Management of Gynecologic-Urologic Complications.

HOMER KIRGIS, JOHN D. JACKSON, WARREN LIEBERMAN, and ROBERT A. SCHIMEK, Ochsner Clinic and Ochsner Foundation Hospital, New Orleans, Louisiana: Ophthalmodynamometry—An Aid in Evaluation of Cerebral Ischmia.

WILLIAM B. KOUNTZ, JAIME TORO, PHILIP G. ACKERMANN, GELSON TORO, and TEOFIL KHEIM, Gerontological Research Foundation and Washington University School of Medicine, St. Louis, Missouri: The Effect of Triparanol (MER-29) on Cholesterol Levels and Its Mode of Action.

DONALD LePERE and IRA S. CLARKSON, JR., Lindale Medical and Dental Clinic, Houston, Texas: Peripheral Vascular Disease in General Medicine.

PHILIP LISAN, WILBUR OAKS, and JOHN MOYER, Hahnemann Medical College, Philadelphia, Pennsylvania: Inhibition of Cholesterol Synthesis in the Liver.

JOSEPH J. LITSCHGI, Cook County Hospital and Hektoen Institute for Medical Research, Chicago, Illinois: Roentgen and Hematological Manifestations of the Congenital Hemolytic Anemias.

J. M. MARTT and LAWRENCE WALDEN, University of Missouri School of Medicine, Columbia, Missouri: New Technique of Cardiac Monitoring.

WILLIAM K. MASSIE, DAVID B. STEVENS, and KEN PHILLIPS, Lexington, Kentucky: Hip Fractures: Treatment Based on Biomechanical Principles Utilizing A Sliding Nail.

HOWARD B. MAYS, University of Maryland School of Medicine, Baltimore, Maryland: Correction of Hypospadias. Correction of Epispadias.

THOMAS H. McGAVACK, HANS G. BAUER, JOHN P. MITCHELL, JR., and KUNG-YING TANG KAO, Veterans Administration Center, Martinsburg, West Virginia: Anti-Inflammatory Adrenocorticoids.

JOHN P. McGOVERN, THEODORE J. HAYWOOD, GILBERT D. BARKIN, KEMAL OZKARAGOZ, ALBERT HENSEL, and JAMES KNIGHT, Baylor University College of Medicine and Texas Children's Hospital, Houston, Texas: "Holistic" Management of the Allergic Child.

GORDON McHARDY, ROBERT McHARDY, HELEN VON FOSSEN, SWAN WARD, JAMES A. ROGERS, and JOHN LECHERT, Louisiana State University School of Medicine, New Orleans, Louisiana: Hypercholesterolemia in Gastroenterology.

JAMES M. MOSS, DEWITT E. DeLAWTER, JAMES B. FIELD, and SIDNEY A. TYROLER, Georgetown University Medical Center, Washington, D. C.: Oral Drugs for Diabetes.

WILLIAM P. MURPHY, JR., for AMERICAN ASSOCIATION OF BLOOD BANKS, Miami, Florida: Rare Donor File—Rare Blood Type File.

JOHN H. NODINE, PETER PETREU, ROBERT BOTNICK, Hahnemann Medical College and Hospital, and B. J. CHANNICK, Temple University Medical Center, Philadelphia, Pennsylvania: Anti-Coagulation with Warfarin Sodium and Potassium.

NEAL OWENS, ROBERT J. MEADE, DELIO D. DELGADO, KUROS TABARI, and CHARLES M. BONURA, Owens-Meade Clinic, New Orleans, Louisiana: Corrective Surgery of Facial Features.

ALBERT J. PAQUIN, JR., University of Virginia School of Medicine, Charlottesville, Virginia, VICTOR F. MARSHALL, and JOHN McGOVERN, New York, New York: The Megacystis Syndrome.

VERONICA M. PENNINGTON, Mississippi State Hospital and Veterans Administration Hospital, Jackson, Mississippi: Premenstrual Tension: Medical and Social Aspects.

F. M. RIPBERGER, ROBERT H. ANDERSON, and RICHARD E. PALMER, Alexandria Hospital, Alexandria, Virginia: Infections in Private Pediatric Practice.

HARRY M. ROBINSON, JR., and ALBERT CIAMBOTTI, University of Maryland School of Medicine, Baltimore, Maryland: Fluocinolone Acetonide.

WALTER W. SACKETT, JR., and MARY M. SACKETT, Miami, Florida: Advantages (Observed and Anticipated) Following Ten Years' Experience with Early Feeding of Solids to Infants.

PHIL C. SCHREIER, JAMES D. MYERS, and JOHN Q. ADAMS, University of Tennessee College of Medicine and City of Memphis Hospitals, Memphis, Tennessee: Evolution of Obstetric Analgesia.

RAY H. SKAGGS, Baylor University College of Medicine, Houston, Texas: Organic Disease and Emotional Distress: Their Relationship and Its Effect on Clinical Management.

GEORGE C. SMITH, Florence, South Carolina, and RAYMOND C. V. ROBINSON, Baltimore, Maryland: The Management of Pyodermas.

C. R. STEPHEN, SARA J. DENT, and CHARLES ADKINS, Duke University Medical Center, Durham, North Carolina: Body Temperature Control in Infants and Children.

SAM E. STEPHENSON, JR., H. WILLIAM SCOTT, L. W. EDWARDS, and J. L. HERRINGTON, Vanderbilt University Hospital, Nashville, Tennessee: Hemigastrectomy and Vagotomy for Duodenal Ulcer.

PERRY C. TALKINGTON, Timberlawn Psychiatric Center, Dallas, Texas: The Modern Psychiatric Hospital.

IAN M. THOMPSON, CARL H. ALMOND, and MARVIN ZATSMAN, University of Missouri Medical Center, Columbia, Missouri: Stop-Flow Analysis of Nephron Transport Sites.

DON L. THURSTON and JEAN HOLOWACH, Washington University School of Medicine and St. Louis Children's Hospital, St. Louis, Missouri: A Clinical Evaluation of Acetazolamide in the Treatment of Epilepsy in Children.

I. FRANK. TULLIS, CHARLES E. ALLEN, and RICHARD R. OVERMAN, University of Tennessee College of Medicine, Memphis, Tennessee: Simple, Effective Weight Reduction.

BRUNO W. VOLK and SYDNEY S. LAZARUS, Isaac Albert Research Institute, Brooklyn, New York: The Pancreas in Human and Experimental Diabetes.

DENNIS M. VOULGARIS, Rugeley and Blasingame Clinic and Hospital, Wharton, Texas: Dysmenorrhea —Cramps or Psyche?

TECHNICAL EXHIBITS

Abbott Laboratories, North Chicago, Illinois ..... G 1 & 3
Alcon Laboratories, Inc., Fort Worth, Texas ..... A 1
American Sterilizer Company, Erie, Pennsylvania ..... G 15
The Armour Pharmaceutical Company, Chicago, Illinois .. D 4
B. F. Ascher & Company, Inc., Kansas City, Missouri ... B 12
Audio-Digest Foundation, Glendale, California ..... F 7
Baxter Laboratories, Inc., Morton Grove, Illinois .... E 6 & 8
Beutlich, Inc., Chicago, Illinois ..... F 17
Borcherdt Company, Chicago, Illinois ..... G 11
George A. Breon & Company, New York, New York .... E 18
Bristol Laboratories, Inc., New York, New York ..... E 4
Encyclopaedia Britannica, Chicago, Illinois ..... F 15
The Burdick Corporation, Milton, Wisconsin ..... D 16
Burton, Parsons & Company, Washington, D. C. ..... B 8
Cameron Surgical Instruments Company, Chicago, Illinois G 10
Carnation Company, Los Angeles, California ..... G 18
Carrtone Laboratories, Inc., Metairie, Louisiana ..... G 6
Chicago Pharmacal Company, Chicago, Illinois ..... G 12
Chicago Reference Book Company, Chicago, Illinois .... F 13
The Chloraseptic Company, Washington, D. C. ..... A 7
Ciba Pharmaceutical Products, Inc., Summit, New Jersey E 2
Coreco Research Corporation, New York, New York ..... J 6
Davies, Rose & Company, Ltd., Boston, Massachusetts .... D 2
Desitin Chemical Company, Providence, Rhode Island ... G 8
The Doho Chemical Corporation, New York, New York C 16
Dome Chemicals, Inc., New York, New York ..... F 16
Duke Laboratories, Inc., South Norwalk, Connecticut .... C 14
Eaton Laboratories, Norwich, New York ..... J 2
Fesler Company, Inc., Stamford, Connecticut ..... B 6
Charles O. Finley & Company, Inc. .....
Flint, Eaton & Company, Decatur, Illinois ..... E 10 & 12
E. Fougera and Company, Inc., Hicksville, New York .... C 7
Fuller Pharmaceutical Company, Minneapolis, Minnesota F 5
Geigy Pharmaceuticals, Yonkers, New York ..... F 4 & 6
Gerber Products Company, Fremont, Michigan ..... B 2
The G. F. Harvey Company, Inc., New York, New York A 3
Charles C. Haskell & Company, Inc., Richmond, Virginia F 8
H. J. Heinz Company, Pittsburgh, Pennsylvania ..... C 11
Irwin, Neisler & Company, Decatur, Illinois ..... G 19
Ives-Cameron Company, Inc., Philadelphia, Pennsylvania B 10
Johnson & Johnson, New Brunswick, New Jersey ... F 19 & 21
G 20 & 22
Knoll Pharmaceutical Company, Orange, New Jersey .... C 15
Lea & Febiger, Philadelphia, Pennsylvania ..... J 8
Lederle Laboratories Division, American Cyanamid Company, Pearl River, New York ..... J 10
Eli Lilly & Company, Indianapolis, Indiana ..... E 1 & F 2
Loma Linda Food Company, Arlington, California ..... D 6
J. A. Majors Company, Dallas, Texas ..... D 3
Maltbie Laboratories Division, Wallace & Tiernan, Inc., Belleville, New Jersey ..... G 7 & 9
Marion Laboratories, Inc., Kansas City, Missouri ..... F 10
The S. E. Massengill Company, Bristol, Tennessee ..... G 16
McNeil Laboratories, Inc., Philadelphia, Pennsylvania .. C 18
Mead Johnson and Company, Evansville, Indiana ..... B 7
Medco Products Company, Tulsa, Oklahoma ..... H 5
Merck Sharp & Dohme, Division of Merck & Company, Inc., West Point, Pennsylvania ..... B 1, 3, 5
C 2, 4, 6
The Wm. S. Merrell Company, Cincinnati, Ohio .... C 1 & 3
Miller Surgical Company, Chicago, Illinois ..... E 15
The C. V. Mosby Company, St. Louis, Missouri ..... G 17
Nordson Pharmaceutical Laboratories, Inc., Irvington, New Jersey ..... E 14
Organon, Inc., Orange, New Jersey ..... B 17
Ortho Pharmaceutical Corporation, Raritan, New Jersey E 7
Parke, Davis & Company, Detroit, Michigan ..... B 13 & 15
Pet Milk Company, Research Division, St. Louis, Missouri G 5
Pfizer Laboratories, Brooklyn, New York ..... F 3
Pharmacia Laboratories, Inc., Rochester, Minnesota ..... D 8
Plough, Inc., Memphis, Tennessee ..... C 12
Wm. P. Poythress & Company, Inc., Richmond, Virginia .. C 9
The Procter & Gamble Company, Cincinnati, Ohio ..... E 9
The Purdue Frederick Company, New York, New York J 16
Reed & Carnrick, Kenilworth, New Jersey ..... G 13
The Rhinopto Company, Dallas, Texas ..... J 12
Riker Laboratories, Inc., Northridge, California .. B 11, C 17
Ritter Company, Inc., Rochester, New York ..... E 11 & 13
A. H. Robins Company, Inc., Richmond, Virginia .. E 17 & 19
F 18 & 20
Roche Laboratories Division, Hoffmann-La Roche, Inc., Nutley, New Jersey ..... C 19 & 21
William H. Rorer, Inc., Philadelphia, Pennsylvania .... C 10
Helena Rubinstein, New York, New York ..... F 12 & 14
Sanborn Company, Waltham, Massachusetts ..... J 14
Sandoz Pharmaceuticals, Hanover, New Jersey ..... B 4
W. B. Saunders Company, Philadelphia, Pennsylvania .... D 5
Schering Corporation, Union, New Jersey ..... B 9
Julius Schmid, Inc., New York, New York ..... D 14
G. D. Searle & Company, Chicago, Illinois ..... E 20
Sherman Laboratories, Detroit, Michigan ..... H 7
Smith-Dorsey Division, The Wander Company, Lincoln, Nebraska ..... B 14
Smith Kline & French Laboratories, Philadelphia, Pennsylvania ..... D 1
E. R. Squibb & Sons, New York, New York ..... E 3
G 2 & 4
The Stuart Company, Pasadena, California ..... J 4
Swift & Company Baby Foods Division, Chicago, Illinois E 16
Teca Corporation, White Plains, New York ..... A 5
First Texas Pharmaceuticals, Inc., Dallas, Texas ..... D 10
Texas Pharmacal Company, San Antonio, Texas ..... F 9
The Upjohn Company, Kalamazoo, Michigan ..... D 7 & 9
U. S. Vitamin & Pharmaceutical Corporation, New York, New York ..... F 1
VanPelt & Brown, Inc., Richmond, Virginia ..... C 8
Wallace Laboratories, New Brunswick, New Jersey ..... D 18, 20 & 22
Wampole Laboratories, Stamford, Connecticut ..... C 5
Warner-Chilcott Laboratories, Morris Plains, New Jersey D 11
The Warren-Teed Products Company, Columbus, Ohio .. D 15
Westwood Pharmaceuticals, Buffalo, New York .... D 17 & 19
White Laboratories, Inc., Kenilworth, New Jersey ..... D 13
Winthrop Laboratories, New York, New York ..... D 12
Wyeth Laboratories, Philadelphia, Pennsylvania ... C 13, E 5
F. E. Young & Company, Chicago, Illinois ..... G 14

Woman's Auxiliary Program

THIRTY-SIXTH ANNUAL MEETING

October 31-November 3, 1960

Statler-Hilton Hotel, St. Louis Missouri

REGISTRATION

Sunday	1:00 p.m.-4:00 p.m.
Monday	9:00 a.m.-4:00 p.m.
Tuesday	9:00 a.m.-4:00 p.m.
Wednesday	9:00 a.m.-4:00 p.m.

North Mezzanine, Statler-Hilton Hotel

SOUTHERN HOSPITALITY SUITE

The Southern Hospitality Suite will be open during registration hours Monday, Tuesday, and Wednesday for the convenience of members and guests. Refreshments will be served.

EXHIBITS

County and State Doctors' Day Exhibits and Scrapbooks will be displayed in the Southern Hospitality Suite on Monday, Tuesday, and Wednesday.

TICKETS

Tickets for the following events will be sold at the Registration desk:

Monday, 8:00 a.m.—Preconvention Board Breakfast $3.00

12:00 noon—Scenic Bus Tour and Luncheon, Bellerive Country Club $5.00

Tuesday, 8:00 a.m.—Breakfast for Past Presidents of Southern Medical Association Auxiliary.

3:15 p.m.—Tea and Style Show, Stix, Baer, and Fuller ..... Complimentary

Wednesday, 8:00 a.m.—Postconvention Board Breakfast $3.00

12:00 noon—Doctors' Day Awards Luncheon $4.50

2:00 p.m.—Tour of Missouri Botanical Gardens and Tea $4.00

MONDAY, OCTOBER 31

8:00 a.m.

PRECONVENTION MEETING OF EXECUTIVE BOARD (Breakfast)

Statler-Hilton Hotel—Mezzanine—Daniel Boone Room

Presiding—Mrs. John M. Chenault, President, Decatur, Alabama

Invocation—Mrs. Richard F. Stover, Past President, Miami, Florida

Greetings—Mr. C. P. Loranz, Advisor and Special Consultant, Southern Medical Association, Birmingham, Alabama

—Mr. Robert F. Butts, Executive Secretary and Treasurer, Southern Medical Association, Birmingham, Alabama

—Dr. Robert D. Moreton, Chairman Southern Medical Association Advisory Council, Fort Worth, Texas

Welcome—Mrs. Charles T. Shepherd, Councilor from Missouri, Clayton, Missouri

Roll Call—Mrs. Paul Gray, Recording Secretary, Batesville, Arkansas

Reading of Minutes of 1959 Postconvention Executive Board Meeting—Mrs. Paul Gray

Introduction of Convention Chairman and Co-Chairman—Mrs. Harold Feller and Mrs. Lee T. Ford, St. Louis, Missouri

Recognition of State Councilors and Special Guests

Reports of Officers

Reports of Committee Chairmen

Unfinished Business

New Business

Announcements

Adjournment

12:00 Noon

Bus Tour through residential St. Louis and Luncheon at Bellerive Country Club.

TUESDAY, NOVEMBER 1

8:00 a.m.

Breakfast for Past Presidents of Southern Medical Association Auxiliary, Daniel Boone Room, Statler-Hilton Hotel.

9:00 a.m.

GENERAL SESSION, THIRTY-SIXTH ANNUAL CONVENTION OF THE WOMAN'S AUXILIARY TO THE SOUTHERN MEDICAL ASSOCIATION

Statler-Hilton Hotel—Mezzanine—Foyers II and III

Presiding—Mrs. John M. Chenault, President, Decatur, Alabama

Invocation—Mrs. Louis K. Hundley, Past President, Pine Bluff, Arkansas

Greetings—Dr. Edwin H. Lawson, President Southern Medical Association, New Orleans, Louisiana

—Dr. R. O. Muether, President Missouri State Medical Association, St. Louis, Missouri

—Dr. Grayson Carroll, General Convention Chairman, St. Louis, Missouri

Welcome—Mrs. Jordan Kelling, President Woman's Auxiliary to the Missouri State Medical Association, Waverly, Missouri
—Mrs. Vencel Hollo, President Woman's Auxiliary to the St. Louis Medical Society
—Mrs. Maurice Diehr, President Woman's Auxiliary to the St. Louis County Medical Society

Response—Mrs. John T. Morris, President Woman's Auxiliary to the Medical Association of the State of Alabama, Cullman, Alabama

Presentation of President-Elect—Mrs. Kalford W. Howard, Portsmouth, Virginia

Greetings—Mrs. William Mackersie, President Woman's Auxiliary to the American Medical Association, Detroit, Michigan

Roll Call—Mrs. Paul Gray, Recording Secretary, Batesville, Arkansas

Recognition of State Presidents, Presidents-Elect, and Guests

Reading of Minutes of 1959 Convention—Mrs. Paul Gray

Convention Announcements—Mrs. Harold Feller, Chairman, and Mrs. Lee T. Ford, Co-Chairman, St. Louis, Missouri

Convention Rules of Order—Mrs. Oscar W. Robinson, Parliamentarian, Paris, Texas

Memorial Service—Mrs. Joseph Hitch, Memorial Chairman, Raleigh, North Carolina

Reports of Officers

President—Mrs. John M. Chenault, Decatur, Alabama

President-Elect—Mrs. Kalford W. Howard, Portsmouth, Virginia

Recording Secretary—Mrs. Paul Gray, Batesville, Arkansas

Corresponding Secretary—Mrs. C. Kermit Pitt, Decatur, Alabama

Treasurer—Mrs. C. Grenes Cole, New Orleans, Louisiana

Historian—Mrs. Shelley C. Davis, Atlanta, Georgia

Parliamentarian—Mrs. Oscar W. Robinson, Paris, Texas

Reports of State Councilors by Regions

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Alabama—Mrs. George W. Newburn, Mobile
Florida—Mrs. S. J. Wilson, Fort Lauderdale
Georgia—Mrs. Louie H. Griffin, Claxton
North Carolina—Mrs. Donnie M. Royal, Salemburg
South Carolina—Mrs. Cecil G. White, Greenville
Tennessee—Mrs. Elmer T. Pearson, Elizabethton

Moderator—Mrs. Elias Margo, Second Vice-President, Oklahoma City, Oklahoma
Arkansas—Mrs. Robert Atkinson, Hot Springs
Louisiana—Mrs. Edward M. Harrell, Lafayette
Mississippi—Mrs. S. Lamar Bailey, Kosciusko
Oklahoma—Mrs. F. L. Flack, Tulsa
Texas—Mrs. H. S. Renshaw, Fort Worth

Moderator—Mrs. Richard E. Dunkley, Third Vice-President, Washington, D. C.
District of Columbia—Mrs. James E. Wissler, Washington
Kentucky—Mrs. Robert F. Monroe, Louisville
Maryland—Mrs. Charles H. Williams, Pikesville
Missouri—Mrs. Charles T. Shepherd, Clayton
Virginia—Mrs. John H. Dellinger, Norton
West Virginia—Mrs. Ross P. Daniel, Beckley

Reports of Committees

Auditing—Mrs. E. R. Guidry, New Orleans, Louisiana

Auxiliary Room—Mrs. William G. Thuss, Sr., Birmingham, Alabama

Budget—Mrs. Gerald LeVan, Boonsboro, Maryland

Custodian of Records—Mrs. W. W. Potter, Knoxville, Tennessee

Doctors' Day—Mrs. Luther H. Wolff, Columbus, Georgia

Membership—Mrs. Roy A. Douglass, Huntingdon, Tennessee

Memorial—Mrs. Joseph N. Hitch, Raleigh, North Carolina

Program and Convention—Mrs. Harold Feller, Chairman, Mrs. Lee T. Ford, Co-Chairman, St. Louis, Missouri

Publicity—Mrs. Martyn Schattyn, St. Louis, Missouri

Resolutions—Mrs. William Noble, Fort Payne, Alabama

Research and Romance of Medicine—Mrs. Perry D. Melvin, Miami, Florida

Revisions—Mrs. Carlisle Morse, Louisville, Kentucky

Special Reports

Courtesy Resolutions

Registration

Executive Board

Unfinished Business

New Business
Election of Nominating Committee for 1961
Report of Nominating Committee for 1960—Mrs. George W. Owen, Chairman, Jackson, Mississippi
Election of Officers

Installation of Officers—Mrs. Walker L. Curtis, Past President, College Park, Georgia

Presentation of Past President's Pin—Mrs. George W. Owen

Presentation of President's Pin and Gavel—Mrs. John M. Chenault

Inaugural Address—Mrs. Kalford W. Howard

Announcements

Adjournment

12:30 p.m.

Southern Medical Association President's Luncheon, Sheraton-Jefferson Hotel, Gold Room.

3:15 p.m.

Tea and Style Show, Stix, Baer and Fuller Department Store.

WEDNESDAY, NOVEMBER 2

8:00 a.m.

POSTCONVENTION MEETING OF EXECUTIVE BOARD (Breakfast)

Statler-Hilton Hotel—Mezzanine—Daniel Boone Room
Presiding—Mrs. Kalford W. Howard, President, Portsmouth, Virginia.

12:00 Noon

DOCTORS' DAY AWARDS LUNCHEON

Statler-Hilton Hotel Ballroom

"Serenade to Southern Doctors"

Presiding—Mrs. Luther H. Wolff, Doctors' Day Chairman, Columbus, Georgia
Invocation—Dr. John M. Chenault, Decatur, Alabama
Introduction of Distinguished Guests—Mrs. Luther H. Wolff
Entertainment—Mrs. Durand Benjamin
Doctors' Day Awards—Mrs. Luther H. Wolff

2:00 p.m.

Tour of Missouri Botanical Gardens and Tea.

7:00 p.m.

Southern Medical Association Annual President's Night Dinner-Dance, Gold Room, Sheraton-Jefferson Hotel.

OFFICERS, SOUTHERN MEDICAL ASSOCIATION

President

Dr. Edwin Hugh Lawson.....New Orleans, Louisiana

President-Elect

*Dr. Tom D. Spies.....Birmingham, Alabama

First Vice-President

Dr. A. Clayton McCarty.....Louisville, Kentucky

Second Vice-President

Dr. Jack C. Norris.....Atlanta, Georgia

Executive Secretary-Treasurer and Business Manager

Mr. Robert F. Butts.....Birmingham, Alabama

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Dr. R. H. Kampmeier.....Nashville, Tennessee

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Dr. Sullivan G. Bedell.....Jacksonville, Florida
Dr. Willis E. Brown.....Little Rock, Arkansas
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Dr. William F. Rienhoff, Jr.....Baltimore, Maryland
Dr. Charles Rieser.....Atlanta, Georgia
Dr. Curtice Rosser.....Dallas, Texas

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(All are Past Presidents)

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Dr. Charles M. Caravati.....Richmond, Virginia

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These two reliable agents combined as Pro-Banthīne with Dartal consistently control both disturbed mood and disordered motility when emotional disturbances project themselves through the vagus to provoke such gastrointestinal dysfunctions as gastritis, pylorospasm, peptic ulcer, spastic colon or biliary dyskinesia.

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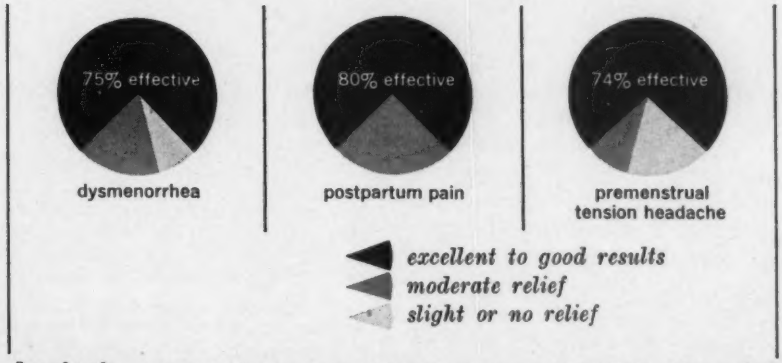
"... excellent results ... in the treatment of dysmenorrhea, premenstrual tension headache, and postpartum pain."[6]



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1. Gray, A. P., *et al.*: Am. Chem. Soc. *81*:4347, 1959. 2. O'Dell, T. B.: Ann. New York Acad. Sc. *86*:191, 1960. 3. O'Dell, T. B., *et al.*: J. Pharmacol. & Exper. Therap. *128*:65, 1960. 4. O'Dell, T.B., *et al.*: Fed. Proc. *18*:1694, 1959. 5. Batterman, R. C., *et al.*: Am. J. Med. Sc. *238*:315, 1959. 6. Wainer, A. S.: Ann. New York Acad. Sc. *86*:250, 1960.

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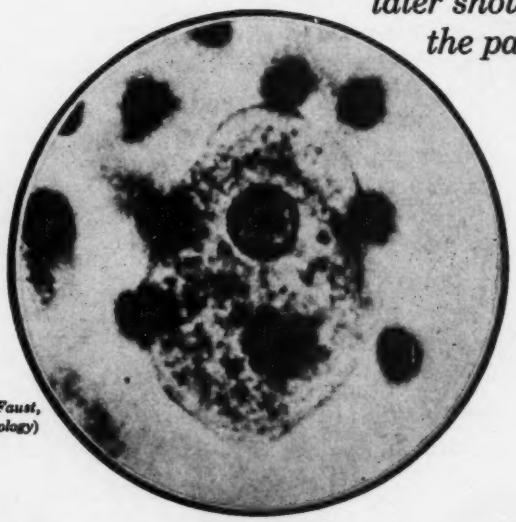

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RESULTS OF POST-TREATMENT STOOL EXAMINATIONS FOR E. HISTOLYTICA

No. of Patients Examined	No. of Controls	No. Positive Before Treatment	No. Positive After First Course of Treatment
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1. Frye, W.W., and Lampert, R.: Treatment of Asymptomatic Endamoeba histolytica Carriers with a Formulation of Bacitracin-Methylene Disalicylate and Iodochlorhydroxyquin (Anameba). (To be published in Am. J. Gastroenterol., October, 1960.)

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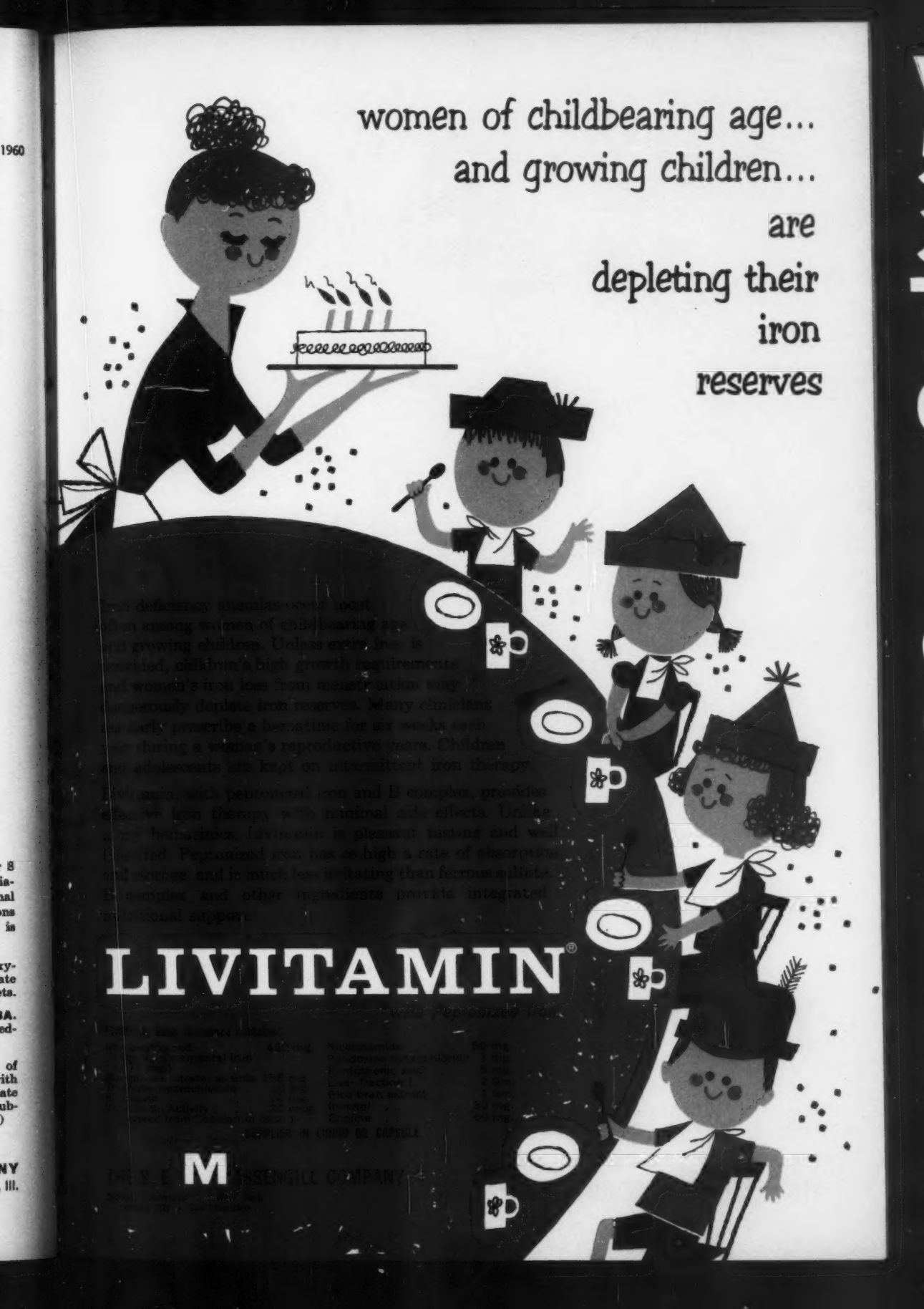
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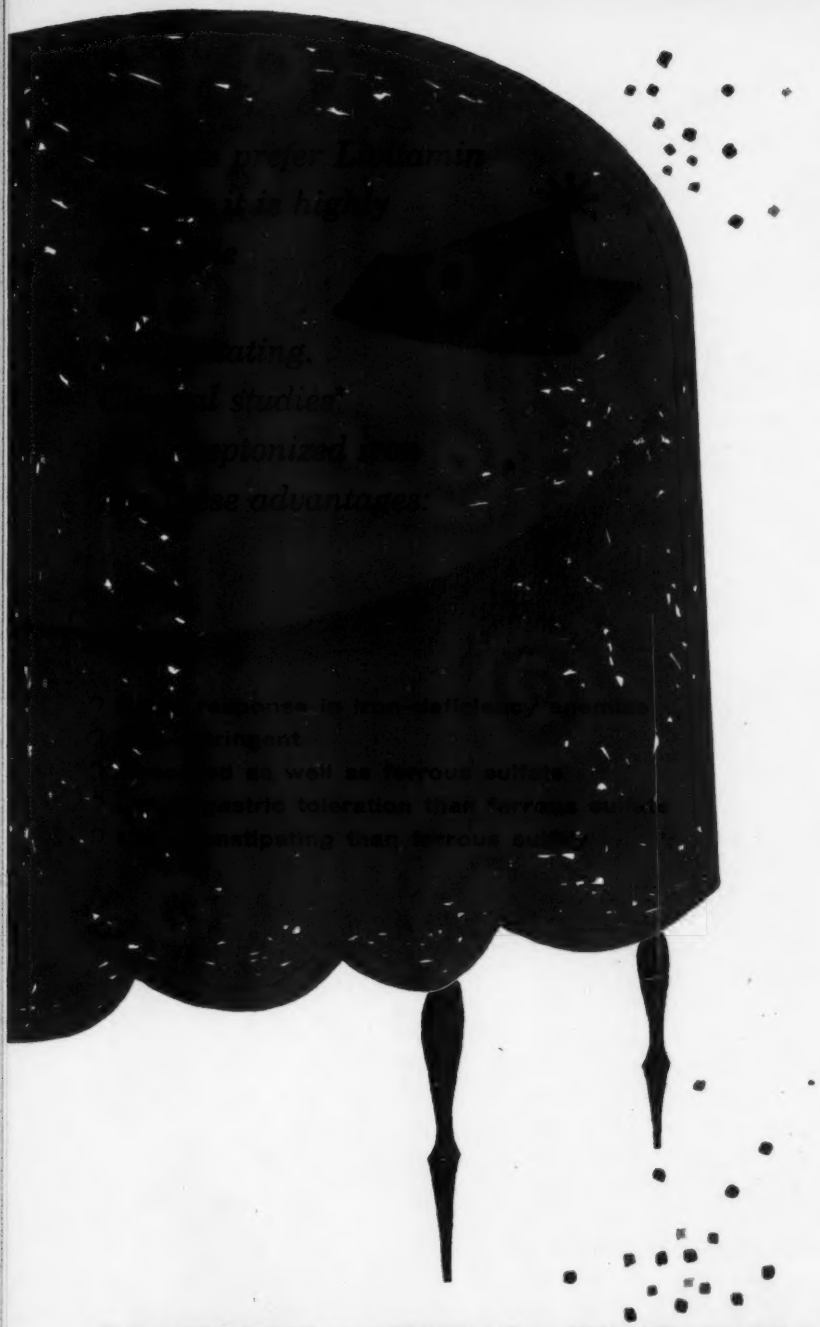

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*Keith, J.H.: Utilization and Toxicity of Peptonized Iron and Ferrous Sulfate, Am. J. Clin. Nutrition 1:35 (Jan.-Feb., 1957).

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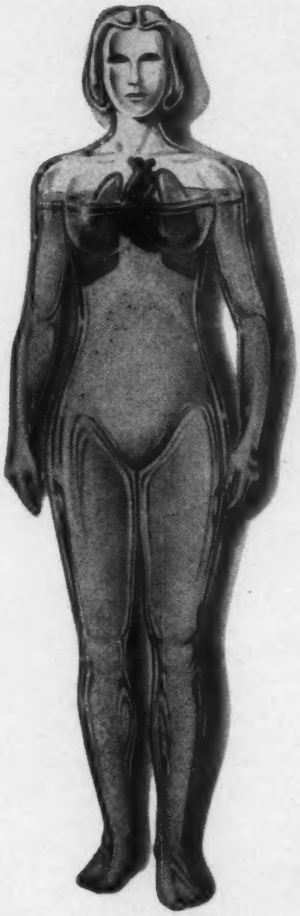
Ford, Ralph V.: Southern Med. Jl. 52: 40, (Jan.) 1959



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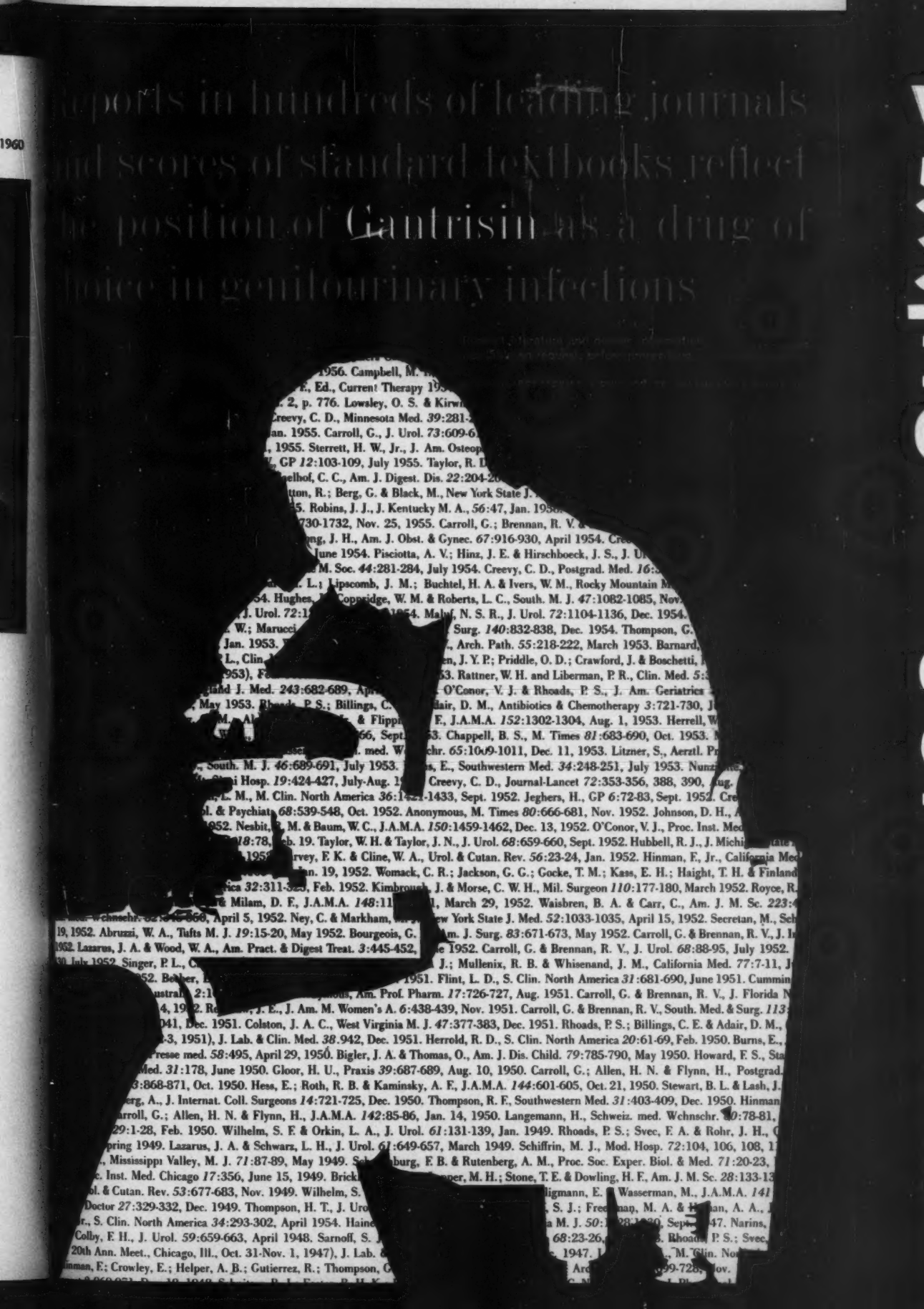

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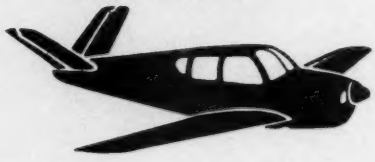

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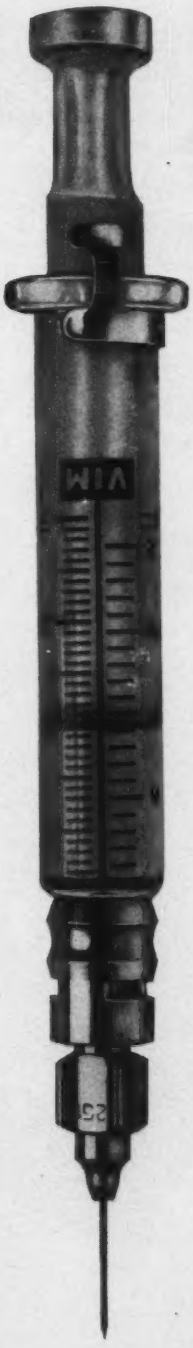

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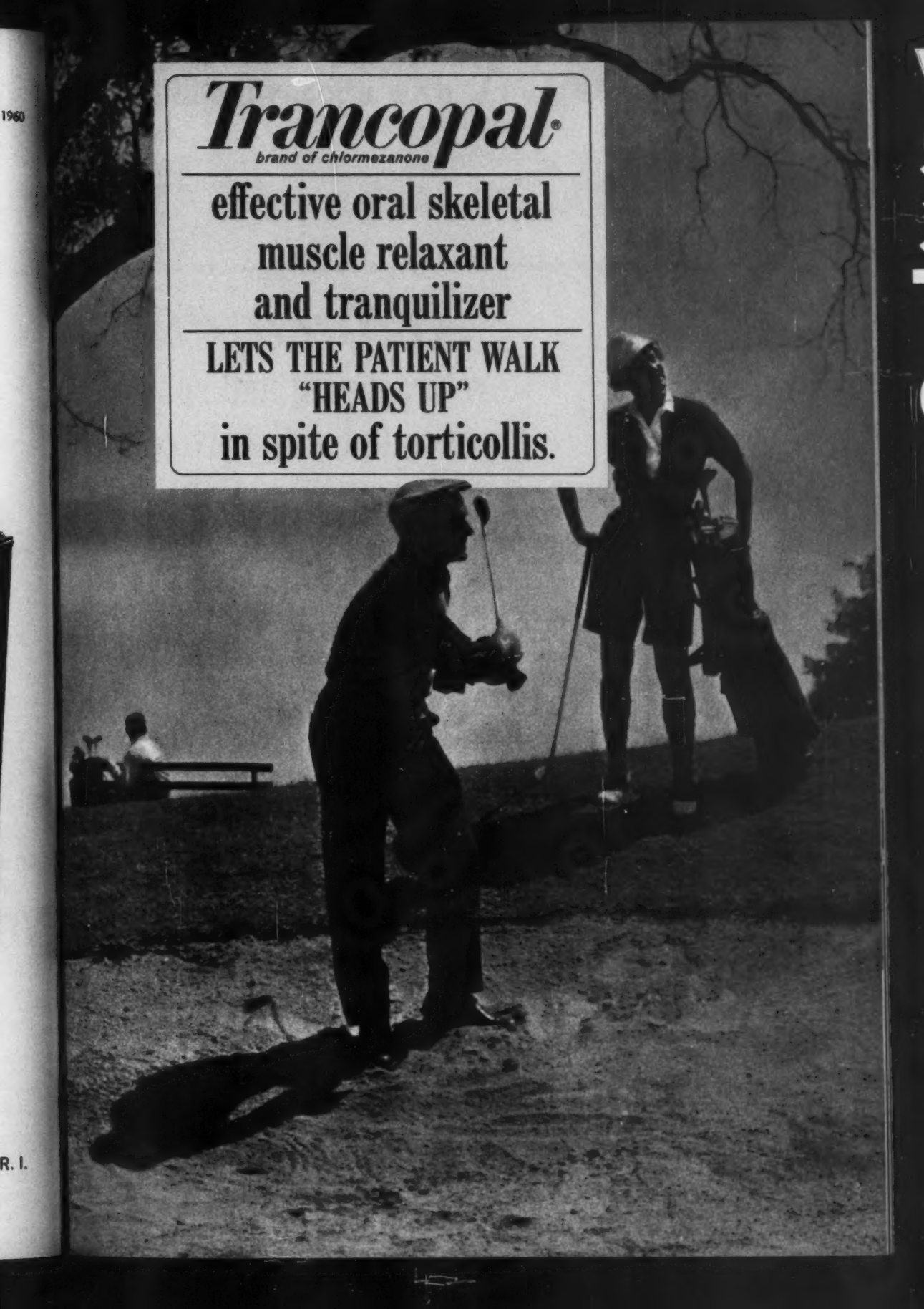
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effective oral skeletal
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LETS THE PATIENT WALK
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in spite of torticollis.

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relieves pain and spasm associated with torticollis.

In a recent study by Ganz, Trancopal brought considerable improvement or very effective relief to 20 of 29 patients with torticollis.[1] "The patients helped by the drug," states Ganz, "were able to carry the head in the normal position without pain." Similarly, Kearney found that in 8 of 13 patients with chronic torticollis treated with Trancopal improvement was excellent to good. "... Trancopal is the most effective oral skeletal muscle relaxant and mild tranquilizer currently available."[2]

Lichtman, in a study of patients with various musculoskeletal conditions, noted that 64 of 70 patients with torticollis obtained excellent to good relief with Trancopal.[3]

In a comparative study of four central nervous system relaxants, Lichtman reports that 26 of 40 patients found Trancopal to be the most effective drug.[3]

1. Ganz, S. E.: *J. Indiana* 52:1134, July, 1959. 2. Kearney, *Current Therap. Res.* 2:1 1960. 3. Lichtman, A. L. *Acad. Gen. Pract. J.* 4:

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Clinical results with *Trancopal*®[2]

	Excellent	Good	Fair	Poor	Total
LOW BACK SYNDROMES					
Acute low back strain	25	19	8	6	58
Chronic low back strain	11	5	1	1	18
"Porters' syndrome"*	21	5	1	1	28
Pelvic fractures	2	1	—	—	3
NECK SYNDROMES					
Whiplash injuries	12	6	2	1	21
Torticollis, chronic	6	2	3	2	13
OTHER MUSCLE SPASM					
Spasm related to trauma	15	6	1	—	22
Rheumatoid arthritis	—	18	2	1	21
Bursitis	2	6	1	—	9
TENSION STATES	18	2	4	3	27
TOTALS	112 (51%)	70 (32%)	23 (10%)	15 (7%)	220 (100%)

*Over-reaching in lifting heavy bags resulting in sprain of upper, middle, and lower back muscles.

Dosage: **Adults, 200 or 100 mg. orally three or four times daily.**
Relief of symptoms occurs in from fifteen to thirty minutes and lasts from four to six hours.

How Supplied: Trancopal Caplets®
200 mg. (green colored, scored), bottles of 100.
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relieves pain and spasm associated with torticollis.

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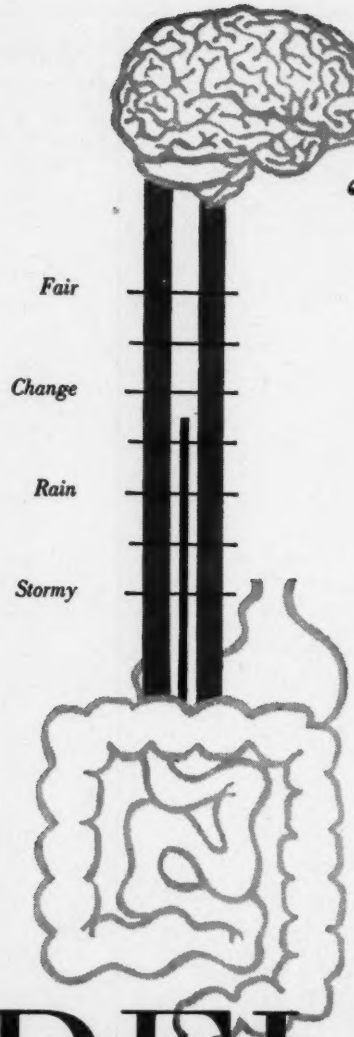

"the G-I tract is the barometer of the mind..."

Belbarb soothes the agitated mind and calms the G-I spasm through the central effect of phenobarbital and the synergistic action of fixed proportions of natural belladonna alkaloids on the gastrointestinal tract.

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CLEARS the bronchial tree of thick mucus and DILATES the bronchioles

Bronkotabs is more effective because it is more comprehensive in treatment. First, Bronkotabs dilates bronchioles, combats local edema and provides mild sedation.

In addition, Bronkotabs decongests, using a most effective expectorant (glyceryl guaiacolate)[2] to liquefy and help expel the thick, tenacious mucus which is the cause of much of the respiratory distress in chronic asthma.[3] Since asthma is a chronic allergic disease of the bronchial tree,[3] Bronkotabs also supplies a highly efficient antihistamine (thenyldiamine) for prophylactic maintenance.[4] Marked and consistent relief of symptoms with minimum side effects can be expected with a dose of one tablet every three or four hours, not to exceed five times daily.

In a recent study[1] of 40 patients with asthma, 33 patients (82.5%) reported Bronkotabs brought fair to good relief from asthmatic symptoms. Asthma relief was expressed by ease of expectoration of secretions, reduction of bronchospasm, and increased vital capacity. "The combination of drugs used in . . . [BRONKOTABS] . . . gave greater relief in these patients than the conventionally used tablet [ephedrine, theophylline, phenobarbital] . . ."

BRONKOTABS DOES MORE FOR THE ASTHMATIC BECAUSE IT IS MORE COMPREHENSIVE IN ACTION. Each tablet contains: Theophylline 100 mg.; Ephedrine Sulfate 24 mg.; Phenobarbital 8 mg.; Thenyldiamine HCl 10 mg. and Glyceryl Guaiacolate 100 mg.
Supplied: bottles of 100 white scored tablets.

References: 1. Spielman, A. D.: In press. 2. Schwartz, E., et al.: Am. Pract. & Digest Treat. 7:585, 1956. 3. Ogden, H. D., and Fuchs, M.: J. Louisiana M. Soc. 111:175, 1959. 4. Drill, W. A.: Pharmacology in Medicine, New York, McGraw-Hill Co., 1954, p. 41.

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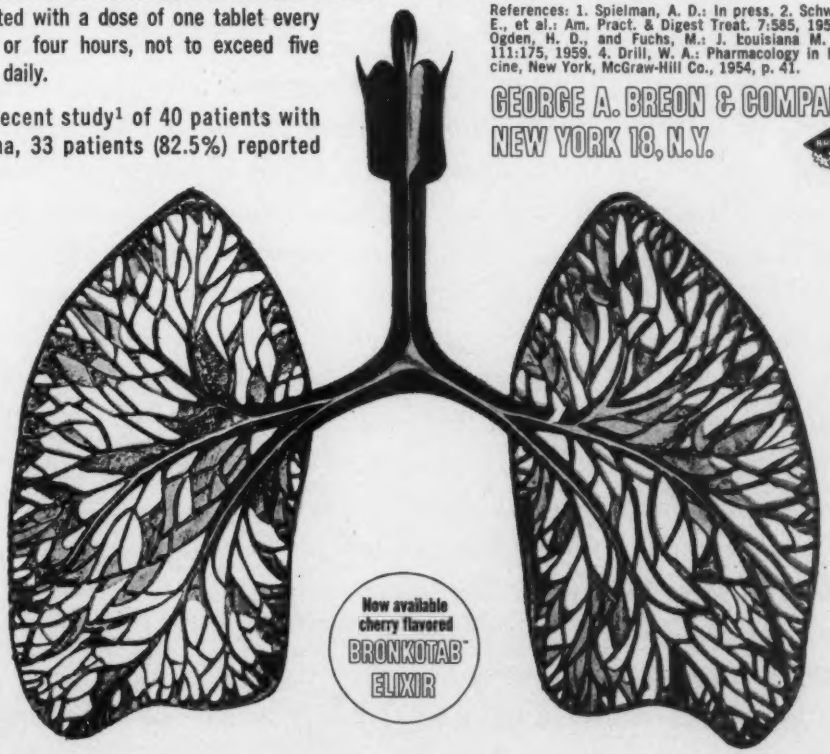

One pharmaceutical research executive points up the importance of failures as guideposts to success in the search for new or improved drugs when he says:

"Failure is our most important product."

The pharmaceutical industry's investment in research has been growing much faster than the industry itself. Last year the prescription drug companies spent a record $197 million for research, a five-fold increase in the space of ten years. Such an investment is possible, of course, only when there are profits. • This growth in privately financed research has sent the volume of laboratory failures soaring. For two years in a row the pharmaceutical industry has tested more than 100,000 substances in the search for new medicines. Fewer than two per cent showed enough promise for clinical testing. Only a handful will ever be sold as prescription drugs. The odds against finding a product with therapeutic value probably exceeded 2000-to-1. • But year by year, as the failures mount, the successes also increase, putting new or improved medications at the disposal of the medical profession. And the public benefits through better health, specific cures, shorter hospitalization, longer lives. • This is only one part of the massive assault on disease that engages the health team headed by the medical profession and embracing hospitals, nurses, pharmacists, technicians, and colleges. It is an effort that could only take place in a society which encourages individual freedom and guarantees incentives to freedom of enterprise.

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Acid stable, highly soluble

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May be administered without regard to meals. However, highest absorption is achieved when taken just before or between meals.

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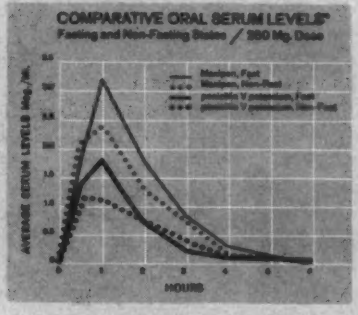
Indicated in infections caused by streptococci, pneumococci, susceptible staphylococci, and gonococci



*Based on 3294 individual serum antibiotic determinations. Complete details available on request.

DOSAGE: For moderately severe conditions, 125 to 250 mg. three times daily. For more severe conditions, 500 mg. as often as every four hours around the clock.

NOTE: To date, MAXIPEN has not shown less allergic reactions than older oral penicillins. Usual precautions regarding penicillin administration should be observed.

SUPPLIED: MAXIPEN TABLETS, scored, 125 mg. (200,000 units), bottles of 36; 250 mg. (400,000 units), bottles of 24 and 100 tablets. MAXIPEN FOR ORAL SOLUTION; reconstituted each 5 cc. contains 125 mg. (200,000 units), in 60 cc. bottles.

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Nonsurgical treatment of Endometriosis with

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Seventeen patients[1] with presumed endometriosis selected for pseudopregnancy treatment were given Enovid on a "schedule of 10 mg. daily for ten days, 20 mg. daily for two weeks, and 30 mg. daily thereafter." Treatment was continued for fourteen to twenty weeks.

"They all experienced diminution or elimination of pain during treatment. Nine were entirely free of pain. Others were definitely improved but had occasional episodes of pelvic discomfort. . . . The improvement observed during treatment has generally persisted [during an average follow-up period of five months]. . . . Patients with the most extensive tenderness, nodularity, and symptoms had the best results."

The effect of Enovid in another study is described[2] as follows:

> "Enovid is a potent, orally effective progestin. The addition of 3-methyl ether of ethynylestradiol prevents 'breakthrough' bleeding and produces an ideal mimic of the hormonal changes of pregnancy. Enovid inhibits ovulation, induces a secretory endometrium and produces a decidual effect in areas of endometriosis. It is postulated that, after five to six months of such treatment, decidual necrosis occurs and is followed by gradual absorption."

The author[2] recommends that this therapy be continued for a minimum of five to six months if the pseudopregnancy is being effected to avoid operation. The side effect of nausea, which usually disappears within four or five days, may be diminished by starting with 5 mg. instead of 10 mg. of Enovid, by use of an antiemetic or by administering the drug with the evening meal or with milk or an antacid.

How Supplied: Enovid (brand of norethynodrel with ethynylestradiol 3-methyl ether) is supplied as uncoated, scored, coral-colored tablets of 10 mg. each.

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Research in the Service of Medicine

1. Andrews, M. C.; Andrews, W. C., and Strauss, A. F.: Effects of Progestin-Induced Pseudopregnancy on Endometriosis: Clinical and Microscopic Studies, Am. J. Obst. & Gynec. 78:776 (Oct.) 1959.
2. Kistner, R. W.: Endometriosis and Infertility, Clin. Obst. & Gynec. 2:877 (Sept.) 1959.

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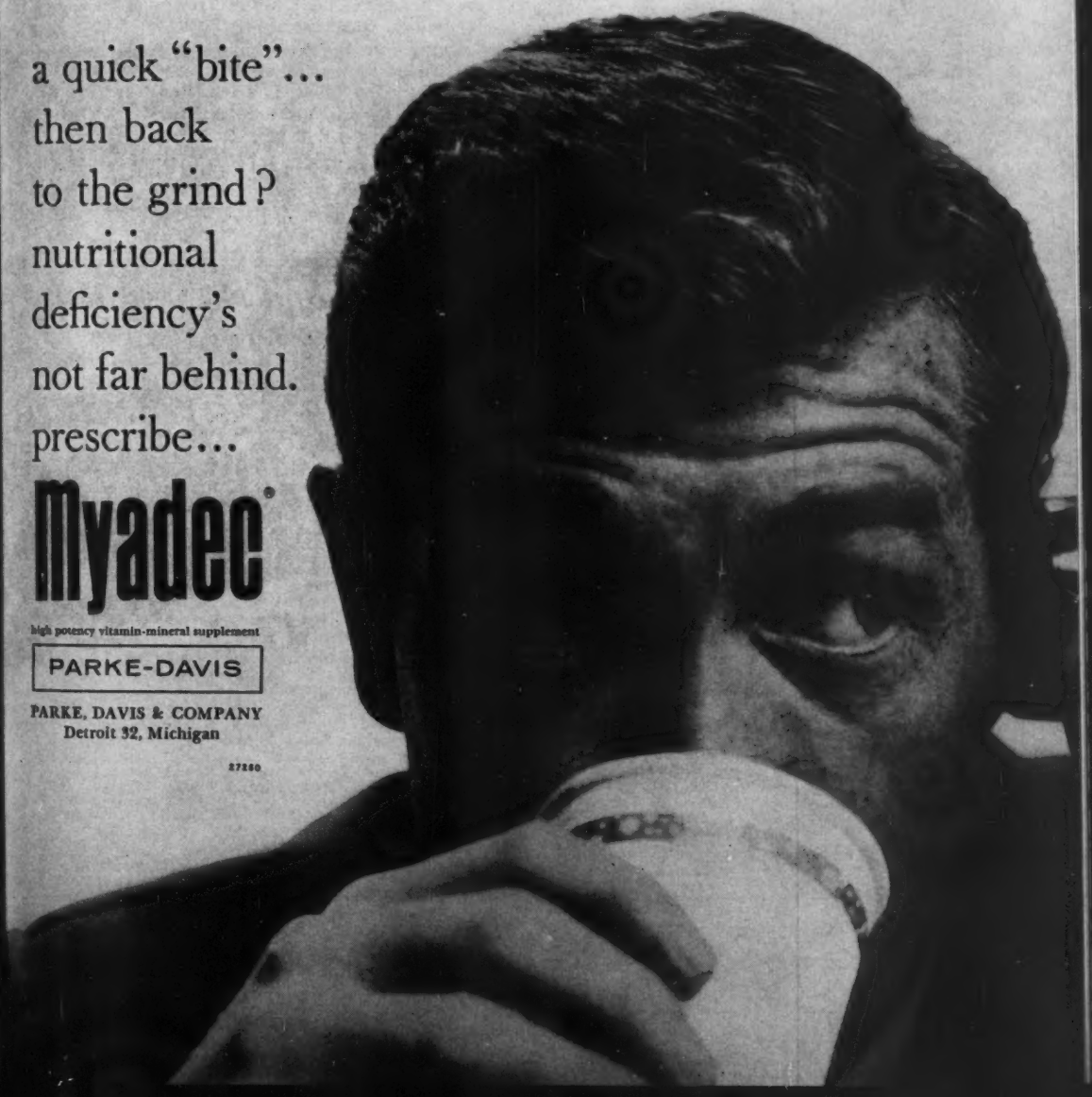

Continued from page 1302

Dow, formerly Professor of Physiology, has been appointed Department Chairman to succeed Dr. Hamilton. Appointed Chairman of the Department of Obstetrics and Gynecology is Dr. Fred P. Zuspan.

Dr. Thomas Fort Sellers, Atlanta, Director Emeritus of the Georgia Department of Public Health, received a Doctor of Science degree and an honorary degree from Emory University.

Dr. Carter Smith, Atlanta, is Vice-President of the American College of Physicians.

Dr. Nanette K. Wenger, Atlanta, has been elected an Associate Fellow of the American College of Cardiology.

KENTUCKY

The following doctors have been added to the staff of Henderson Clinic in Henderson: Dr. Sheldon Kessler, Pediatrics; Dr. C. J. McGruder, Jr., Obstetrics and Gynecology; and Dr. M. G. Veal, Jr., Internal Medicine and Cardiology.

Officers of the Kentucky Chapter of the American Academy of General Practice are Dr. John G. Archer, Prestonsburg, President; Dr. Edgar B. Morgan, Louisville, President-Elect; Dr. Thornton E. Bryan, Jr., Cadiz, Dr. George S. Allen, Louisville, Dr. Roy Wilson, Campbellsville, and Dr. Phillip J. Begley, Harlan, Vice-Presidents; Dr. W. E. Becknell, Manchester, Treasurer; and Dr. J. S. Williams, Nicholasville, Executive Secretary.

Dr. Austin F. Finley, Madisonville, has been appointed Medical Director of the Hopkins County Health Department.

Dr. Wellington B. Stewart has joined the Department of Pathology at the University of Kentucky Medical Center, Lexington.

LOUISIANA

Dr. James A. Miller, Jr., has been appointed Professor and Chairman of the Department of Anatomy at Tulane School of Medicine; and Dr. Charles M. Nice, Jr., Professor of Radiology, has been appointed as Chairman of the newly created Department of Radiology.

Dr. Samuel Nadler, New Orleans, has been elected as a member of the Board of Trustees of the Society of Nuclear Medicine.

Officers of the New Orleans Gynecological and Obstetrical Society include Dr. Daniel W. Beacham, President; Dr. Julius T. Davis, President-Elect; Dr. E. Perry Thomas, Vice-President; Dr. Frank G. Nix, Secretary; and Dr. Robert C. Smith, Treasurer.

Dr. J. Maxim Perret, Jr., New Orleans, is President of the Louisiana State Pediatric Society. Dr. Dorothy

Continued on page 70

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Collins—Fundamentals of Nerve Blocking
By VINCENT J. COLLINS, M.D., New York University, Bellevue Medical Center. With the Assistance of EMERY ANDREW ROVENSTINE, M.D., New York University, Bellevue Medical Center. *354 pages. 144 illustrations. 19 tables. New. $9.50.*

Goldberger—Primer of Water, Electrolyte and Acid-Base Syndromes
By EMANUEL GOLDBERGER, M.D., F.A.C.P., Columbia University, New York. *322 pages, 5¼" x 7¾". 38 tables, charts and diagrams. $6.00.*

Lewin—The Foot and Ankle
Injuries, Diseases, Deformities, Disabilities. By the Late PHILIP LEWIN, M.D., F.A.C.S., F.I.C.S., Northwestern University Medical School, Chicago. *612 pages. 339 illustrations. 4th edition. $14.00.*

Wohl and Goodhart—Modern Nutrition in Health and Disease
By MICHAEL G. WOHL, M.D., Hahnemann Medical College and Hospital, Philadelphia; and ROBERT S. GOODHART, M.D., Columbia University School of Public Health, New York. 59 CONTRIBUTORS. *1152 pages. 75 illustrations. 155 tables. New 2nd edition. $18.50.*

Fleming, D'Alonzo and Zapp—Modern Occupational Medicine
Edited by A. J. FLEMING, M.D., and C. A. D'ALONZO, M.D., E. I. duPont de Nemours & Company. Associate Editor; J. A. ZAPP, Ph.D., E. I. duPont de Nemours & Company. *New 2nd edition. Just ready.*

Grollman—Pharmacology and Therapeutics
By ARTHUR GROLLMAN, Ph.D., M.D., F.A.C.P., Southwestern Medical School, University of Texas, Dallas. *1079 pages. 217 illustrations, 2 in color. 42 tables. New 4th edition. $12.50.*

Hollander—Arthritis and Allied Conditions
8 Section Editors. 30 Contributing Editors. Edited by JOSEPH LEE HOLLANDER, M.D., School of Medicine, University of Pennsylvania. *1306 pages. 417 illustrations. New 6th edition. $20.00.*

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By GEORGE E. BURCH, M.D., F.A.C.P., Tulane University School of Medicine, New Orleans; and TRAVIS WINSOR, M.D., F.A.C.P., University of Southern California Medical School, Los Angeles. *293 pages. 286 illustrations. New 4th edition. $5.00.*

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Katz, Stamler and Pick—Nutrition and Atherosclerosis
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By ELLIOTT P. JOSLIN, M.D., HOWARD F. ROOT, M.D., PRISCILLA WHITE, M.D., and ALEXANDER MARBLE, M.D., New England Deaconess Hospital, Boston. *798 pages. Illustrated. 153 tables. 10th edition. $16.50.*

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Lederle

Continued from page 68

J. York, New Orleans, is Vice-President and President-Elect; and Dr. Ellen P. MacKenzie, Gretna, is Secretary.

MARYLAND

Dr. James H. Evans has joined the staff of Garrett County Memorial Hospital.

Dr. L. Michael Glick, Cumberland, has been elected a member of the Board of Directors of the Allegany-Garrett County Heart Association.

Officers of the Baltimore County Medical Association are Dr. Margaret L. Sherrard, Baltimore, President; Dr. Frank T. Kasik, Jr., Baltimore, Vice-President; and Dr. Elizabeth Sherrill, Cockeysville, Secretary-Treasurer.

Dr. Wilfred R. Ehrmantraut, Silver Spring, is Medical Director of the Children's Center at Laurel.

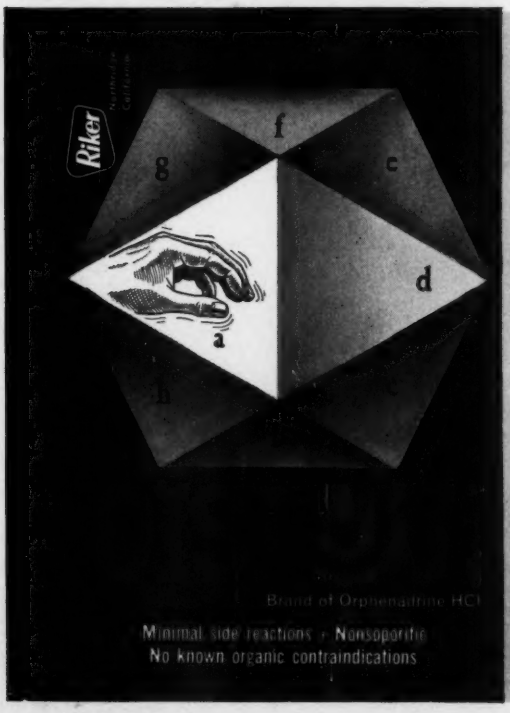
Dr. Andre V. Fesus, Baltimore, is a new member of the Baltimore County Medical Association.

MISSISSIPPI

New faculty appointments announced by the University of Mississippi School of Medicine include Dr. Karl A. Bolten, Assistant Professor of Obstetrics-Gynecology; Dr. John A. Gronvall, Instructor in Pathology; and Dr. Forrest T. Tuto Instructor in Neurosurgery.

Dr. E. K. Guinn, Okolona, has been named Third

Continued on page 72



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a Lessens rigidity and tremor

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Dosage: Usually 1 tablet (50 mg.) t.i.d.—When used in combination, dosage should be correspondingly reduced.

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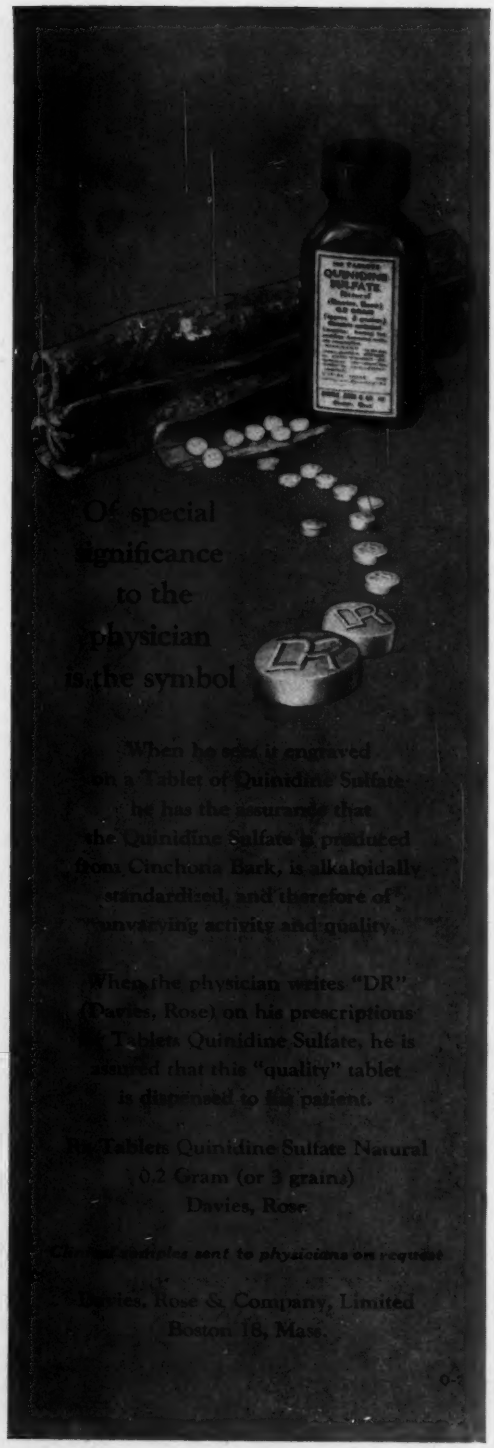
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WANTED—Internist and Pediatrician. A well-established obstetrician-gynecologist, ophthalmologist, otorhinolaryngologist, and general surgeon, wish to add an internist and pediatrician to their group; midwest location near large city; complete laboratory facilities under the auspices of a registered medical technologist; x-ray facilities under the direction of a Radiologist, Pharmacy and Optical Shop. Contact VSA, c/o SMJ.

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FOR SALE—Office and home combination; beautiful subtropical lower Rio Grande Valley of Texas; due to health reasons must relocate; office 4 rooms and bath; two bedroom home; ranch style brick veneer; central gas heat; air conditioned; on limited practice grossed $40,000.00 last year with no O.B.s or major surgery; potential unlimited; 3 open staff hospitals within 10 miles; new Methodist hospital under construction; metropolitan area; 16 miles to Old Mexico; 40 miles to Gulf of Mexico and marvelous fishing; deer, whitewing, dove plentiful; must sacrifice for quick sale; terms to reliable party. Contact Dr. George W. Diver, Box 127, Elsa, Texas.

Continued from page 70

Vice-President of the Okolona Lions Club and Dr. Joe H. Shoemaker is on the Board of Directors.

Dr. R. B. Flowers, West Point, has been elected to membership in the American Society of Abdominal Surgeons.

Dr. Charles F. Hoffman, Gulfport, has received a fellowship in the American College of Chest Physicians.

President of the Pontotoc Junior Chamber of Commerce is Dr. W. B. Howard, Pontotoc.

Dr. James H. Leigh, Philadelphia, has been named Chairman of the medical staff of Neshoba County Hospital.

Continued on page 74

Librium and the 66 tranquilizers

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meprobamate **plus** d-amphetamine... depresses appetite...elevates mood... eases tensions of dieting...**without** overstimulation, insomnia or barbiturate hangover.

Dosage: One tablet one-half to one hour before each meal.

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Dr. Robert L. McKinley, Bay St. Louis, has been elected Chairman of the Hancock County Blood Bank.

Dr. William H. Rosenblatt, Jackson, is serving as Vice-Chairman of the Hinds County Heart Council.

Dr. Robert C. Tibbs, Walnut, is Superintendent of the Natchez Charity Hospital.

Dr. W. W. Walley, Waynesboro, has been appointed President of the Wayne County Chapter of the American Cancer Society.

Dr. Stennis Davis Wax, Starkville, has been elected Director of the Monroe and Lowndes County Health Departments.

New members of the Mississippi State Medical Association include Dr. Charles E. Bell, Eupora; and Dr. Durward L. Harrison, Jr., Calhoun City.

MISSOURI

Dr. Jules Kopp, St. Louis, is President of the St. Louis Urological Association.

Dr. J. Martyn Schattyn, St. Louis, has been elected Chairman of Region VII of the American Cancer Society.

Officers of the Radiological Society of Greater Kansas City are Dr. Gerhard W. Schottman, President, and Dr. J. Stewart Whitmore, Secretary-Treasurer, both of Kansas City.

Continued on page 78

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FORMULA: Each 15 cc (3 teaspoonfuls) contains: Pentylenetetrazol 150 mg., Niacin 75 mg., Methyl Testosterone 2.5 mg., Ethinyl Estradiol 0.02 mg., Thiamine Hydrochloride 6 mg., Riboflavin 3 mg., Pyridoxine Hydrochloride 6 mg., Vitamin B-12 2 mcg., Folic Acid 0.33 mg., Panthenol 5 mg., Choline Bitartrate 20 mg., Inositol 15 mg., l-Lysine Monohydrochloride 100 mg., Vitamin E (a-Tocopherol Acetate 3 mg., Iron (as Ferric Pyrophosphate) 15 mg., Trace Minerals as: Iodine 0.05 mg., Magnesium 2 mg., Manganese 1 mg., Cobalt 0.1 mg., Zinc 1 mg., 15% Alcohol.

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a breathing spell from asthma

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a rapid way to clear the airway

- stops wheezing
- increases cough effectiveness
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In chronic disorders associated with obstructed respiration, the dependable antispasmodic and expectorant action of Quadrinal rapidly clears the bronchial tree. Patients breathe more easily and acute episodes of bronchospasm are often eliminated. Quadrinal is well tolerated, even on prolonged administration. The potassium iodide in Quadrinal provides an expectorant of time-tested effectiveness and safety.

Indications: Bronchial asthma, chronic bronchitis, pulmonary fibrosis, pulmonary emphysema.

Quadrinal Tablets, containing ephedrine HCl (24 mg.), phenobarbital (24 mg.), *Phyllicin** (theophylline-calcium salicylate) (130 mg.), and potassium iodide (65 mg.).

Also available—
a new Quadrinal dosage form with taste-appeal for all age groups:
fruit-flavored QUADRINAL SUSPENSION (1 teaspoonful = 1/2 Quadrinal Tablet)

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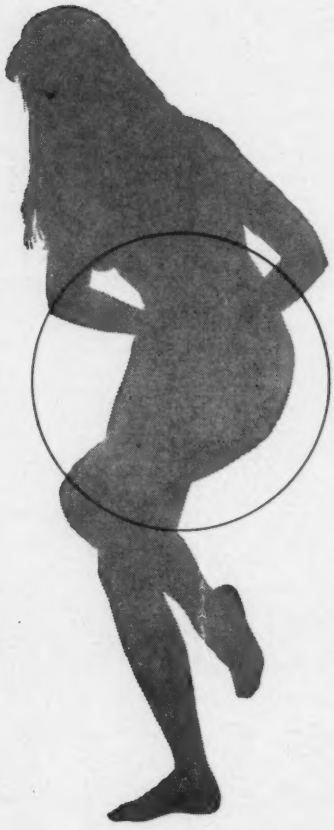
*Quadrinal, Phyllicin®

In female urethritis referred pain complicates diagnosis



Pain in the groin, suprapubic region, thighs and lower back is often caused by urethritis but, as a result of negative urinary findings, is attributed to other organs. Direct examination of the urethra helps localize the origin of referred pain, evidence of urethral inflammation calling for local therapy.

Younger women with bacterial urethritis respond to the antibacterial, anesthetic and dilating effects of FURACIN Inserts (formerly FURACIN Urethral Suppositories) containing nitrofurazone 0.2% and the local anesthetic diperodon·HCl 2% in a water-dispersible base. Each suppository hermetically sealed in silver foil, box of 12.

Older women respond to the estrogenic, antibacterial, anesthetic and dilating effects of FURESTROL Suppositories containing, in addition to nitrofurazone and diperodon ·HCl, diethylstilbestrol 0.0077% (0.1 mg.) which corrects postmenopausal urethritis at the cellular level. Each suppository hermetically sealed in orchid foil, box of 12.

FURACIN® INSERTS and FURESTROL® SUPPOSITORIES

brand of nitrofurazone

alleviate pain—simplify treatment

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for relief from the total cold syndrome...

safe cough suppression

superior upper respiratory decongestion

classic expectorant action

prompt antipyresis and analgesia

Tussagesic*

timed-release tablets/suspension

Each Tussagesic timed-release Tablet provides:

TRIAMINIC®	50 mg.
DORMETHAN (brand of dextromethorphan HBr)	30 mg.
TERPIN HYDRATE	180 mg.
APAP (acetaminophen)	325 mg.

Dosage: *Adults and children over 12* – one tablet in the morning, midafternoon and at bedtime. Each tablet should be swallowed whole to preserve the timed-release action.

Each tsp. (5 ml.) of Tussagesic Suspension provides:

TRIAMINIC®	25 mg.
DORMETHAN (brand of dextromethorphan HBr)	15 mg.
TERPIN HYDRATE	90 mg.
APAP (acetaminophen)	120 mg.

Tussagesic Suspension is especially suited for children and for adults who prefer liquid medication; it is pleasantly flavored, non-narcotic and non-alcoholic.

Dosage (to be taken every 3 or 4 hours): *Adults and children over 12* – 1 or 2 tsp.; *Children 6 to 12* – 1 tsp.; *Children 1 to 6* – ½ tsp.; *Children under 1* – ¼ tsp.

* TRADEMARK

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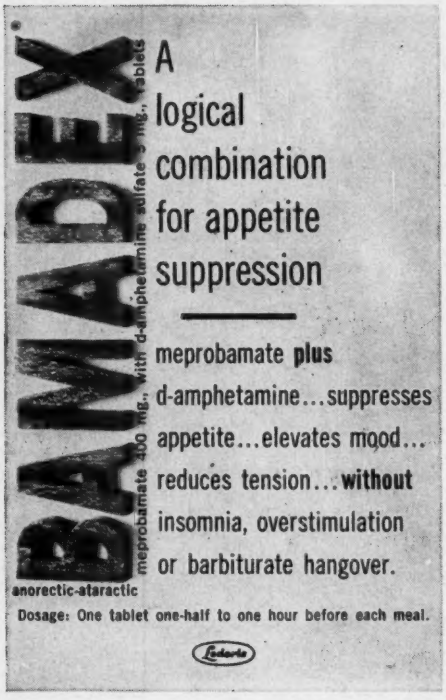
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meprobamate 400 mg., with d-amphetamine sulfate 5 mg., tablets
A logical combination for appetite suppression
meprobamate plus d-amphetamine...suppresses appetite...elevates mood... reduces tension...without insomnia, overstimulation or barbiturate hangover.
anorectic-ataractic
Dosage: One tablet one-half to one hour before each meal.

Continued from page 74

Dr. James L. O'Leary, St. Louis, is President-Elect of the American Neurological Association.

Officers of the Kansas City Chapter of the Missouri Academy of General Practice are Dr. Frank A. O'Connell, President; Dr. I. C. Fowler, President-Elect; Dr. Robert Butcher, Secretary; and Dr. Richard Owens, Treasurer, all of Kansas City.

Newly-approved faculty appointments in the Department of Surgery at the University of Missouri Medical Center are Drs. Ezra R. Singer, Samuel H. Gray, Gerard J. Voelkers, Jong-In Kim, and Ralph Bender, all Assistant Instructors; and Dr. Loszlo Kovacsi, Instructor.

Promotions at the St. Louis University School of Medicine include Dr. Don C. Weir, full Professor of Clinical Radiology; Dr. Jackson K. Eto, Associate Professor of Pediatrics; Dr. Archibald M. Ahern, Assistant Professor of Clinical Medicine; Dr. Armand Brodeur, Assistant Professor of Clinical Radiology; Dr. George E. Gantner, Assistant Professor of Pathology; Dr. Hubert A. Ritter, Assistant Professor of Clinical Medicine; Dr. Jerome T. Shen, Assistant Professor of Clinical Pediatrics; Dr. James F. Sullivan, Assistant Professor of Clinical Medicine; Dr. George E. Thoma, Jr., Assistant Professor of Clinical Medicine; Dr. Matt H. Backer, Jr., Senior Instructor in Gynecology and Obstetrics; Dr. Donald A. Bindbeutel, Senior Instructor in Surgery; Dr. John J. Budd, Senior Instructor in Internal Medicine; Dr. James L. Dona-

Continued on page 80

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In disabling rheumatoid arthritis. A 62-year-old printer incapacitated for three years was started on DECADRON, 0.75 mg./day. Has lost no work-time since onset of therapy with DECADRON one year ago. Blood and urine analyses are normal, sedimentation rate dropped from 36 to 7. He is in clinical remission.*

New convenient b.i.d. alternate dosage schedule: the degree and extent of relief provided by DECADRON allows for b.i.d. maintenance dosage in many patients with so-called "chronic" conditions. Acute manifestations should first be brought under control with a t.i.d. or q.i.d. schedule.

Supplied: As 0.75 mg. and 0.5 mg. scored, pentagon-shaped tablets in bottles of 100. Also available as injection DECADRON Phosphate. Additional information on DECADRON is available to physicians on request. DECADRON is a trademark of Merck & Co., Inc.

*From a clinical investigator's report to Merck Sharp & Dohme.

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TREATS MORE PATIENTS MORE EFFECTIVELY

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New Concepts of OPTIMAL NUTRITION during THE SECOND FORTY YEARS

Optimal nutrition at all ages is promoted excellently by *routine* use of VITA-FOOD Brewers' Yeast—"an excellent source of protein of high biologic value and of the vitamins of the B complex."

Eminently valuable too are its unsurpassed digestability, its content of minerals and lipotropic factors, its virtually ideal nutritional balance—for normal CO-ACTION of essential nutrients, a synergism indispensable to enduring vigor.

VITA-FOOD Brewers' Yeast is authoritatively attested to be most useful for older patients—in whom the extreme SUBTLETY of cumulative nutritional insults is fostered by TIME, which may bring increased demands for proteins and vitamins.

For prevention and in dietotherapy of many disorders throughout THE SECOND FORTY YEARS, *prescribe as a routine supplement.*

VITA-FOOD
Brewers' Yeast

Continued from page 78

hue, Senior Instructor in Pediatrics; Dr. William T. Fitzgerald, Senior Instructor in Internal Medicine; Dr. John W. Fries, Senior Instructor in Radiology; and Dr. Robert H. Ramsey, Senior Instructor in Internal Medicine.

NORTH CAROLINA

The Seventh Medical District of the North Carolina Medical Society will hold its annual meeting on Oct. 19, 1960, at the Gaston Country Club, Gastonia.

Dr. Charles R. Vernon, Department of Psychiatry of the University of North Carolina School of Medicine, has been named Director of a new training program for persons engaged in the care of the mentally ill under the organization of the North Carolina State Hospitals Board of Control.

Dr. Logan T. Robertson, Asheville, has been reappointed as a member of the Medical Advisory Council of the American Association of Industrial Nurses.

New members of the Medical Society of the State of North Carolina are Dr. Charles B. Neal III, Durham; Dr. John W. Ormond, Jr., Monroe; Dr. William T. Rice, Salisbury; Dr. Sigurd C. Sandzen, McCain; Dr. Casper C. Warren, Jr., Durham; Dr. Daniel W. Davis, Durham; Dr. George W. Gentry, Jr., Roxboro; Dr. Stuart Boatwright, Waynesville;

Continued on page 82

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REMEMBER THIS: SO DOES ENARAX

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Think of the anxieties, the tensions.

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(10 MG. OXYPHENCYCLIMINE PLUS 25 MG. ATARAX®†) A SENTRY FOR THE G.I. TRACT

dosage: Begin with one-half tablet b.i.d.—preferably in the morning and before retiring. Increase dosage to one tablet b.i.d. if necessary, and adjust maintenance dose according to therapeutic response. Use with caution in patients with prostatic hypertrophy and only with ophthalmological supervision in glaucoma.

supplied: In bottles of 60 black-and-white scored tablets. Prescription only.

References: 1. Steigmann, F., **et al.**: Am. J. Gastroenterol. 33:109 (Jan.) 1960. 2. Hock, C. W.: to be published. 3. Leming, B. H., Jr.: Clin. Med. 6:423 (Mar.) 1959. 4. Data in Roerig Medical Department Files.

†brand of hydroxyzine

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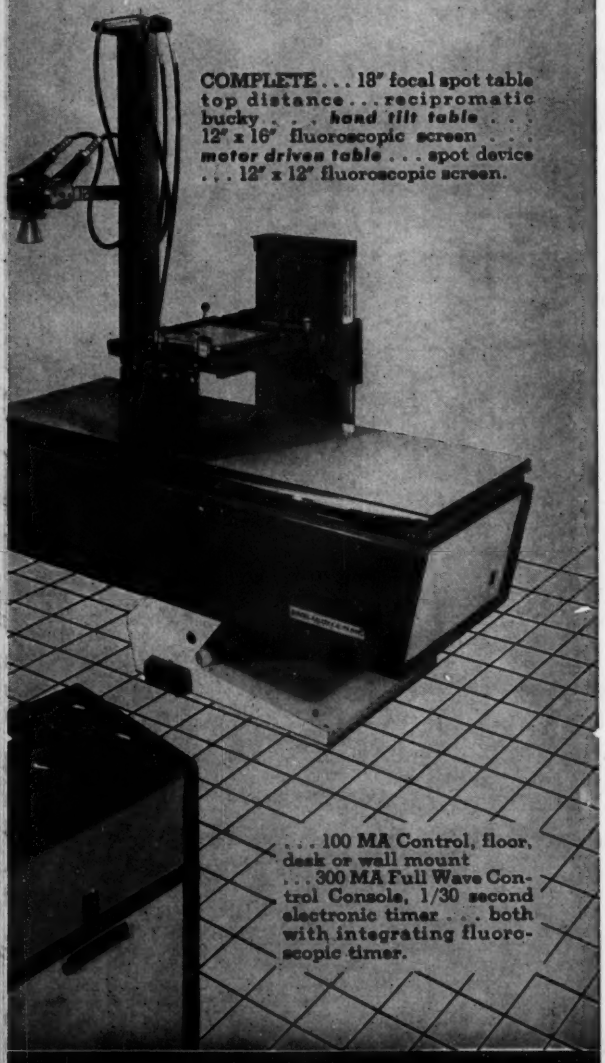

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Continued from page 83

Dr. Joe W. Frazer, Jr., Greensboro; Dr. Howard S. Wainer, Greensboro; and Dr. George C. Alderman, Wilmington.

OKLAHOMA

Dr. E. C. Mohler, Ponca City, is a Vice-President of the Oklahoma State Heart Association.

Dr. Robert Lembke has accepted the position of Chief of the Occupational Medical Department of the Ponca City Division, Continental Oil Company.

Dr. W. Paul Dickinson has joined the staff of the Broadway Clinic in Shawnee.

Dr. William O. Ellifrit is a staff member of the Harrison-Parrish Clinic in Seminole.

Dr. Samuel E. Dakil has joined the staff of the McAlester Clinic, McAlester.

Dr. William W. Schottstaedt, Chairman of the Department of Preventive Medicine and Public Health at the University of Oklahoma School of Medicine, has had his book, *Psychophysiologic Approach in Medical Practice,* published by The Year Book Publishers, Inc.

Dr. Henry H. Turner, Clinical Professor of Medicine at the University of Oklahoma School of Medicine, recently attended the International Conference of Endocrinology in Copenhagen, Denmark, and the International Goiter Conference in London.

Dr. Richard E. Jones, formerly of Swarthmore, Pennsylvania, has been appointed Professor of Anesthesiology and Chairman of the Division of Anesthesiology at West Virginia University.

Officers of the Oklahoma State Radiological Society include Dr. J. Murphree, Ponca City, President; and Dr. E. D. Greenberger, McAlester, Secretary.

SOUTH CAROLINA

After 50 years of service to the medical profession, Dr. Kenneth M. Lynch has retired as President of the Medical College of South Carolina and has been appointed Chancellor. Dr. Lynch has been a member of Southern Medical Association since 1914. He served as Council member from South Carolina, 1935-1940. In 1920 he received the first award in the first scientific exhibits of the Association. In 1921 he was awarded the Research Medal, and in 1957 the Distinguished Service Award and Medal was conferred upon him.

Richard B. Speaker, MC, USN, U. S. Naval Hospital, Charleston, has been certified as a Diplomate of the American Board of Obstetrics and Gynecology.

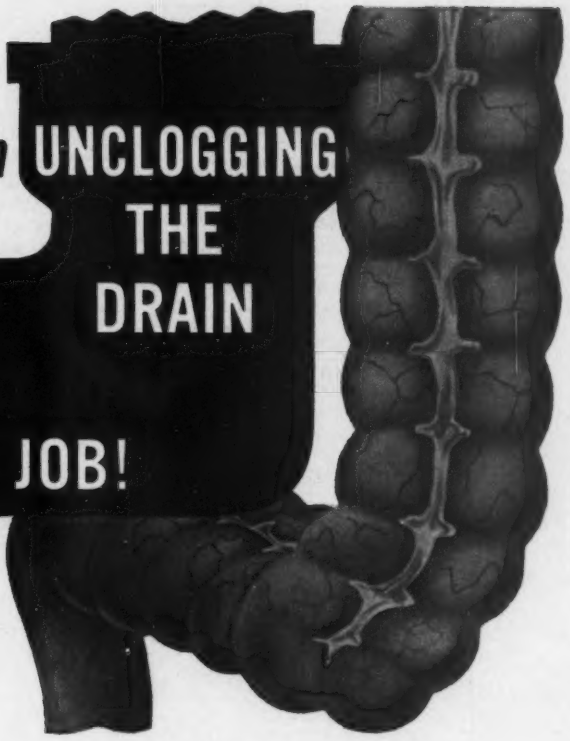
Officers of the South Carolina Radiological Society are Dr. William A. Matthews, Rock Hill, President; Dr. J. Harvey Atwill, Orangeburg, Vice-President; and Dr. George W. Brunson, Columbia, Secretary-Treasurer.

Dr. John H. Young, Columbia, has been installed as President of the Columbia Lions Club.

Officers of the South Carolina Surgical Society are Dr. William S. Brockington, Greenwood, Presi-

Continued on page 84

in constipation UNCLOGGING THE DRAIN IS THE JOB!



Just as important as relief, *revitalization* of the weakened gut musculature is necessary — for its return to normal motility and function.

MODANE *will* "unclog the drain" — gently, overnight, without griping. Modane's danthron acts systemically on the large bowel — is non-habit-forming, non-toxic.

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MODANE offers aid to bowel revitalization through *pantothenic acid* which encourages restoration of peristaltic efficiency — has been proven indispensable to acetylcholine formation and normal bowel function.

MODANE is available in three forms — Tablets, Tablets Mild (half strength) and Liquid. Average Adult Dose — one tablet, or one teaspoonful or fraction thereof, with the evening meal.

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SECRAN Liquid in 1 pint or 1 gallon bottles. Capsules, 100, 500 and 1000's.

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LIQUID and CAPSULES

SECRAN (Liquid)

Each average teaspoonful (5 cc.) contains the five following B-Complex vitamins in a palatable vehicle:

Vitamin B_{12} Crystalline	25 μg.
Thiamine Hydrochloride (vitamin B_1)	3 mg.
Nicotinamide (niacin)	10 mg.
Calcium Pantothenate	2 mg.
Pyridoxine Hydrochloride	1 mg.

DOSAGE

The average daily dose for adults is 2 to 4 teaspoonfuls. Children, in proportion to age.

FIRST TEXAS *Pharmaceuticals, Inc.*

Pharmaceuticals Since 1901

DALLAS ATLANTA

Continued from page 82

dent; Dr. John C. Hawk, Charleston, Vice-President; and Dr. John R. Timmons, Columbia, Secretary-Treasurer.

Dr. Newman M. Lewis is officer in charge of the United States Public Health Service Outpatient Clinic in Charleston.

Dr. H. R. Pratt-Thomas has been appointed Dean of the School of Medicine and Dr. Vince Moseley, Dean of Clinical Medicine, at the Medical College of South Carolina.

TENNESSEE

Dr. James G. Hughes, Professor of Pediatrics at the University of Tennessee College of Medicine, has been named Chief of the Division of Pediatrics.

Dr. Roland H. Alden has assumed the duties of acting Dean of the University of Tennessee School of Biological Sciences.

Dr. John Youmans, Nashville, has been named Director of the American Medical Association's Division of Scientific Activities.

Officers of the staff of the Carter County Memorial Hospital include Dr. W. G. Frost, Chief; Dr. E. L. Caudill, Vice-Chief; and Dr. Joyce May, Secretary-Treasurer.

Dr. Warren C. Ramer is Chief of Staff of the Lexington-Henderson County Hospital. Dr. Maurice N. Lowry is Vice-Chief; Dr. Jack C. Stripling, Sec-

Continued on page 86

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for muscle relaxation plus analgesia

prescribe PARAFON in low back pain—sprains—strains—rheumatic pains

Each PARAFON tablet contains:

PARAFLEX® Chlorzoxazone† ..... 125 mg.
The low dosage skeletal muscle relaxant

TYLENOL® Acetaminophen ..... 300 mg.
The superior analgesic in musculoskeletal pain

Dosage: Two tablets t.i.d. or q.i.d.

Supplied: Tablets, scored, pink, bottles of 50.

in arthritis

PARAFON® with Prednisolone

Each PARAFON with Prednisolone tablet contains: PARAFLEX® Chlorzoxazone† 125 mg., TYLENOL® Acetaminophen 300 mg., and prednisolone 1.0 mg.

Supplied: Tablets, scored, buff colored, bottles of 36.

Dosage: One to two tablets t.i.d. or q.i.d.

Precautions: The precautions and contraindications that apply to all steroids should be kept in mind when prescribing PARAFON with Prednisolone.

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meprobamate 400 mg., with d-amphetamine sulfate 5 mg., Tablets

FOR THERAPY
OF OVERWEIGHT PATIENTS

- d-amphetamine depresses appetite and elevates mood
- meprobamate eases tensions of dieting (yet without overstimulation, insomnia or barbiturate hangover).

Dosage: One tablet one-half to one hour before each meal.

A LOGICAL COMBINATION
IN
APPETITE CONTROL

Lederle

Continued from page 84

retary; and Dr. Cornelia Huntsman, Assistant Secretary.

Dr. Robert Spalding has been named Staff Psychiatrist of the Chattanooga Guidance Clinic.

Dr. C. Harold Steffee is the new Director of Laboratories at Methodist Hospital in Memphis. Dr. J. A. Crisler, Jr., Memphis, has been elected to the Board of Managers of the Hospital.

Dr. William O. Green, Jr., has been named Associate Pathologist of the Jackson-Madison County General Hospital in Jackson.

Dr. James J. Callaway, Nashville, has been elected Chairman of the Board of Directors of the Middle Tennessee Heart Association.

Dr. Frank E. Whitacre, Nashville, has been appointed Chief of Obstetrics and Gynecology at Nashville General Hospital.

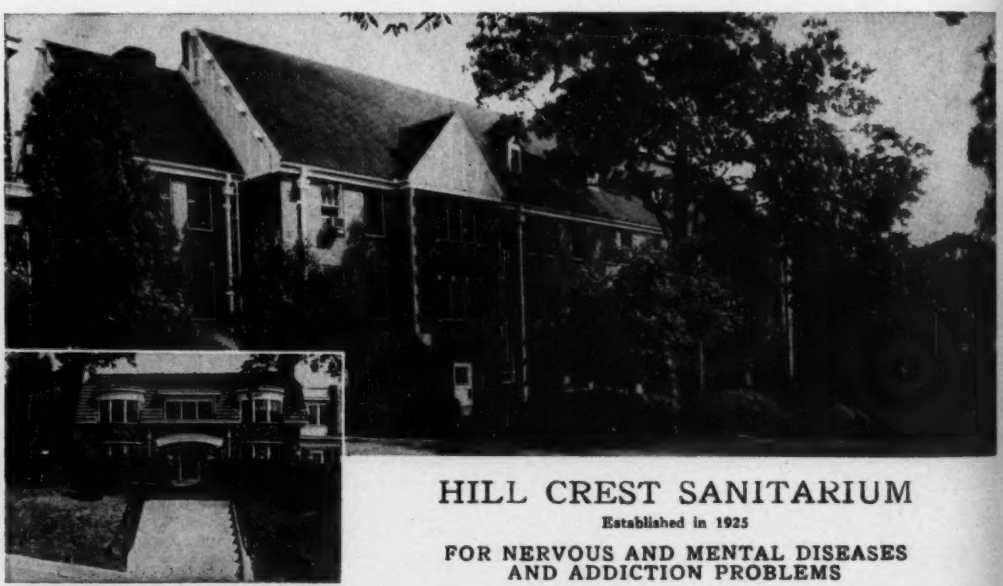
Staff officers at Copper Basin General Hospital in Copperhill include Dr. J. T. Layne, Chief; Dr. W. C. Zachary, Jr., Vice-Chief; and Dr. W. R. Lee, Secretary.

Dr. Joseph W. Stephens has joined the staff of the Nautilus Memorial Hospital at Waverly.

Dr. Halden W. Hooper, Dickson, has joined the medical staff of the Goodlark General Hospital.

Dr. Joe T. Smith, Knoxville, has been named President of the Knoxville, Oak Ridge and Maryville Pediatric Association.

Continued on page 88



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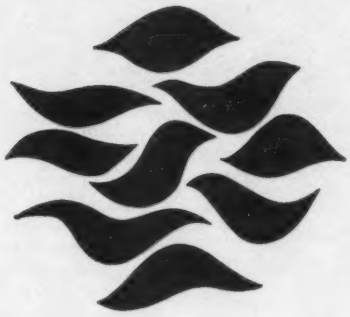

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for relief of symptoms
in over 10,000,000 patients*

Novahistine LP tablets begin releasing medication promptly and continue bringing relief for 8 to 12 hours. Two Novahistine LP tablets in the morning and two in the evening will effectively control the average patient's discomfort from a cold. Each tablet contains 25 mg. phenylephrine HCl and 4 mg. chlorprophenpyridamine maleate.

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LONG ACTING

Continued from page 86

TEXAS

A clinical conference on "Cancer of the Uterine Cervix, Endometrium and Ovary" will be presented by the University of Texas M. D. Anderson Hospital and Tumor Institute and the University of Texas Postgraduate School of Medicine Oct. 21 and 22, 1960, in Houston. Ten hours of credit for Category I of the American Academy of General Practice will be certified for attendance.

The Postgraduate School of the University of Texas and the Baylor University College of Medicine will present a course in Allergy Jan. 30-Feb. 3, 1961, in Houston. The course will be followed by a meeting of the Gulf Coast Allergy Study Group on February 4 and 5. For further information, write to: Office of the Dean, University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Houston 25, Texas.

Major General William E. Shambora, MC, USA, Commanding General, Brooke Army Medical Center, Fort Sam Houston, has been awarded an honorary degree of Doctor of Law at the 1960 commencement of St. Mary's University in San Antonio.

Dr. George R. Herrmann, Professor of Medicine at the University of Texas Medical Branch in Galveston and Director of the Cardiovascular Research Laboratory and Heart Station, recently was made an honorary fellow of the American College of Cardiology.

VIRGINIA

The Southeastern Region of the College of American Pathologists and the Virginia Society of Pathologists will hold a joint meeting at the John Marshall Hotel in Richmond Nov. 25 and 26, 1960, on kidney disease.

Dr. Jack Freund, Richmond, has been appointed as Medical Director of the A. H. Robins Company, Inc., pharmaceutical manufacturing firm.

Dr. William H. Muller, Jr., Charlottesville, is Treasurer of the North American Chapter of the International Cardiovascular Society.

Captain Robert J. Whipple, MC, USN, has joined the staff of the Commander Service Force, U. S. Atlantic Fleet, Norfolk.

The following faculty members of the Medical College of Virginia have been promoted to full professorships in the Department of Medicine: Drs. Elam Toone, Jr., Solomon Papper, and John L. Patterson, Jr.

Dr. Fred T. Renick, Martinsville, has been elected a member of the Martinsville City Council.

Dr. W. E. Moody, Scottville, has been re-elected surgeon of the Virginia Department of the Veterans of Foreign Wars.

Dr. Helen W. Taylor is President of the medical staff of the De Paul Hospital in Norfolk. Dr. Robert K. Maddock is President-Elect and Dr. Charles E. Horton is Secretary.

Continued on page 90

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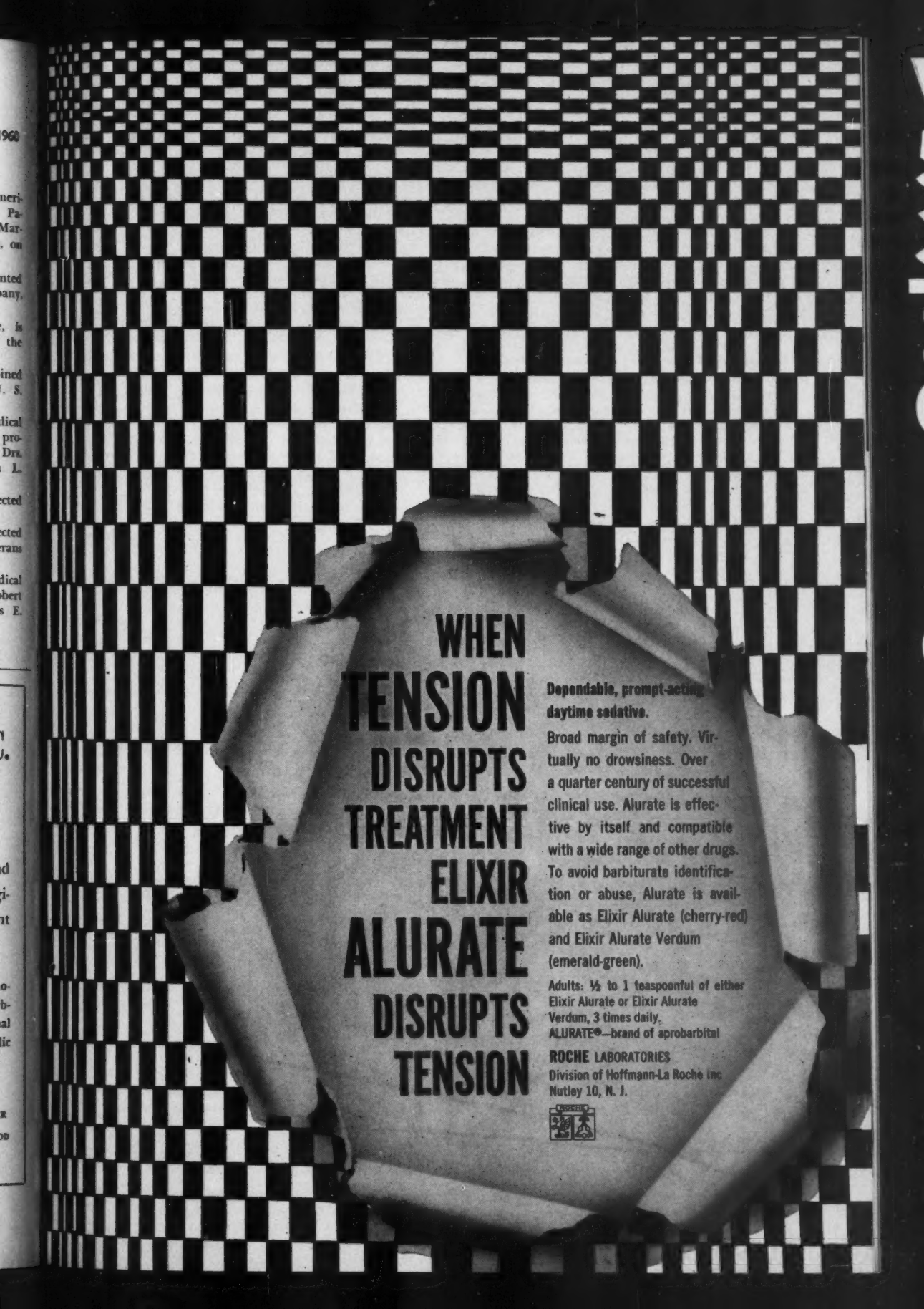
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Continued from page 88

Officers of the Norfolk County Medical Society include Dr. John Franklin, President; Dr. Mason C. Andrews, President-Elect; Dr. Howard I. Kruger, Vice-President; Dr. Meyer I. Krischer, Recording Secretary; Dr. George F. Elsasser, Corresponding Secretary; and Dr. William Hotchkiss, Secretary. The physicians are all of Norfolk.

Dr. Lemuel Mayo is President of the Portsmouth Academy of Medicine; Dr. H. M. Kunkle, Vice-President; Dr. L. L. Davis, Secretary; and Dr. E. A. Barham, Treasurer. All are from Portsmouth.

New members of the Medical Society of Virginia include Dr. Kurtz E. Alderman, Clintwood; Dr. Harold J. Berman, Alexandria; Dr. William S. Burton, Nassawadox; Dr. Joseph S. Costa, Arlington; Dr. William T. Dabney, Richmond; Dr. Hunter M. Doles, Norfolk; Dr. Grahame F. Henson, Charlottesville; Dr. George J. A. Magnant, Arlington; Dr. Robert I. McClaughry, Alexandria; Dr. Oriel C. Morris, Arlington; Dr. Virgil A. Motley, Jr., Abingdon; Dr. James E. Patterson, Marion; Dr. Heinz J. Strasser, Stanardsville; and Dr. Marvin L. Weger, Richmond.

WEST VIRGINIA

New staff appointments at the West Virginia University School of Medicine include Dr. D. Franklin Milam, Associate Professor of Surgery and Chairman of the Division of Urology; Dr. William G. Klingberg, Professor and Head of the Department of Pediatrics; Dr. Edward G. Stuart, Assistant Professor of Pathology; Dr. Richard E. Jones, Professor and Chairman of the Division of Anesthesiology.

Dr. Charles A. Zeller has been named Superintendent of Weston State Hospital, Weston.

Dr. A. J. Villani, Welch, has been reappointed by Governor Cecil H. Underwood as a member of the State Board of Examiners for Practical Nurses.

Dr. Edward A. Litsinger has been appointed by Governor Underwood as Superintendent of Spencer State Hospital, Spencer.

Dr. J. C. Huffman, Buckhannon, has been named part-time health officer for Upshur County.

Dr. Edith Cserny has been appointed Superintendent of Huntington State Hospital, Huntington.

New members of the West Virginia State Medical Association are Dr. Chester D. Harman, Petersburg; Dr. Clay H. Orvis, Elkins; Dr. Hassan Vaziri, Huntington; and Dr. William R. Wolverton, Kingwood.

Dr. Mildred Mitchell-Bateman, Superintendent of Lakin State Hospital, has accepted appointment as Supervisor of the State Department of Mental Health's Division of Professional Services.

Dr. Mayes B. Williams, Medical Director of the Ohio Valley General Hospital in Wheeling, has been reappointed by Governor Underwood as a member of the Advisory Board to the State Board of Health.

Dr. Bernard S. Clements, Matoaka, is West Virginia's "General Practitioner of the Year" for 1960.

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ADVERTISER	PAGE
Ames Company, Inc.	16
Appalachian Hall	84
Brawner's Sanitarium	90
Brayten Pharmaceutical Corporation	3
George A. Breon & Company	63
Burroughs Wellcome & Company, Inc.	14
Chicago Pharmacal Company	52
Ciba Pharmaceutical Products, Inc.	45
Davies, Rose & Company, Ltd.	72
Desitin Chemical Company	60
Dewberry Engraving Company	88
Doho Chemical Corporation	34
Drug Specialties, Inc.	74
Duke Laboratories, Inc.	80
Eaton Laboratories	11, 22, 42, 76
Endo Laboratories, Inc.	31
The Fesler Company, Inc.	30
Geigy Pharmaceuticals	38
Charles C. Haskell & Company	62
Hill Crest Sanitarium	86
Hynson, Westcott & Dunning, Inc.	48
Irwin, Neisler & Company	20-21, 50-51
Knoll Pharmaceutical Company	2, 75
Lea & Febiger	68
Lederle Laboratories Division, American Cyanamid Company	40-41, 59, 70, 74, 78, 86
Eli Lilly and Company	3rd Cover
The S. E. Massengill Company	opp. 16, opp. 52
Mattern X-Ray Division, Land-Air, Inc.	82
McNeil Laboratories, Inc.	7, 19, 85
Merck Sharp & Dohme	6, 54-55, 79
Parke, Davis & Company	15, 67, 4th Cover
Pharmaceutical Advertising Club	64
Picker X-Ray Corporation	24
Pitman-Moore Company	87
Wm. P. Poythress & Company, Inc.	8
The Rhinopto Company	78
Riker Laboratories, Inc.	1, 70
A. H. Robins Company, Inc.	4-5, opp. 32, 33
Roche Laboratories, Division of Hoffmann-La Roche, Inc.	12-13, 57, 73, 89
J. B. Roerig & Company	32, 43, 65, 81
Helena Rubinstein	25
Sanborn Company	44
G. D. Searle & Company	49, 66
Smith-Dorsey Division, The Wander Company	18, 46-47, 77
Smith Kline & French Laboratories	9, 39, 56, 71
Southern Airways Company	58
E. R. Squibb & Sons	35
First Texas Pharmaceuticals, Inc.	84
Tucker Hospital, Inc.	88
The Upjohn Company	17
U. S. Vitamin & Pharmaceutical Corporation	26-27
VanPelt & Brown, Inc.	23
Vitamin Food Company, Inc.	80
Wallace Laboratories	28-29, 36-37, 53, 69, 91
Warren-Teed Products Company	83
Westwood Pharmaceuticals	10
Winthrop Laboratories	opp. 60, 61

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